

Redevelopment of Oratorju Qalb ta' Ġesù Phase 1 Civil Works

SPECIFICATION

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A10

Project particulars

Clauses

110 The Project

1. Name: *Redevelopment of Oratorju Qalb ta' Ġesù - Phase 1 Civil Works*
2. Nature: *Civil works*
3. Location: *Oratorju Qalb ta' Ġesù, Pjazza Dun Angelo Camilleri, Il-Mosta*

120 Employer (client)

1. Name: *Mosta Parish*
2. Address: *Uffiċċju Parrokkjali, 1, Triq il-Bażilika, Il-Mosta*
3. Contact: *Fr. Sebastian Caruana*
4. Telephone: *21 433 826*
5. Email: *parrocca.mosta@maltadiocese.org*

130 Principal contractor

1. Name: _____
2. Address: _____
3. Contact: _____
4. Telephone: _____
5. Email: _____

140 Architect(Perit)/ contract administrator

1. Name: *Bezzina & Cole, Architects & Engineers*
2. Address: *52, Triq Sir Augustus Bartolo, Ta' Xbiex XBX1099, Malta*
3. Contact: *Perit Andrè Mangion*
4. Telephone: *2131 0966*
5. Email: *a.mangion@bezzina-cole.com*

150 Project Architect (Project Perit)

1. Name: *Perit Rowena Gauci*
2. Address: *3, Triq I-Għonella, Il-Mosta*
3. Telephone: *79257997*
4. Email: *rowenagauci@gmail.com*

160 Quantity surveyor

1. Name: *Bezzina & Cole, Architects & Engineers*
2. Address: *52, Triq Sir Augustus Bartolo, Ta' Xbiex XBX1099, Malta*
3. Contact: *Matteo Vella*
4. Telephone: *2131 0966*
5. Email: *m.vella @bezzina-cole.com*

170 Structural Engineer

1. Name: *Bezzina & Cole, Architects & Engineers*
2. Address: *52, Triq Sir Augustus Bartolo, Ta' Xbiex XBX1099, Malta.*
3. Contact: *Perit Andrè Mangion*
4. Telephone: *2131 0966*
5. Email: *a.mangion@bezzina-cole.com*

Ω End of Section

A11

Tender and contract documents

Clauses

110 Tender Drawings

1. The tender drawings are: *refer to the Tender List of Drawings*

120 Contract drawings

1. The contract drawings: *The same as the tender drawings.*

160 Pre-construction information

1. **Format:** *The pre-construction information is described in these Preliminaries in section A34. It refers to information given elsewhere in the Preliminaries, specification, drawings and associated documents.*

Ω End of Section

A12

The site/ existing buildings

Clauses

110 The site

1. **Description:** *The Oratorju Qalb ta' Ġesù is a complex composed of a chapel, Classrooms on each side of the chapel (i.e. Catechism Wing and Sacristy wing), a theatre at the back of the chapel, an annex to the theatre (Gunners wing), and a football ground at the back. The complex was constructed piecemeal.*

For the purpose of this project the Oratorju Qalb ta' Ġesù is divided as follows:

1. Chapel
2. Theatre
3. Catechism wing
4. Sacristy wing
5. Gunners wing
6. Football ground
7. Parvis

The chapel together with the flanking classrooms at ground floor, originally four on each side facing a passageway on each side, and the theatre at the back, were constructed between 1928 and 1940. The original complex is a stone masonry building, consisting of multi-tier stone masonry walls and roofed over with stone roofing slabs supported by steel beams.

In 1959, the passageway along the one storey Catechism wing was built over to create a youth centre. It included the introduction of two large skylights over the original passageway. The first-floor classrooms at first floor of the Catechism wing, together with the balcony connecting each classroom were constructed in 1961. Each classroom was divided with lightweight partitions. In 1967 the first-floor classrooms of the sacristy wing were constructed. New sanitary facilities for the classes at sacristy wing at first floor, adjacent to the theatre projector room were constructed in 1995. These extensions to the Catechism and Sacristy wing were constructed as a stone masonry structure roofed over with reinforced concrete slabs.

The theatre was also upgraded several times from 1970's. The stage was replaced with a new larger stage and a new proscenium in 1973. Post 1973, a backstage annex was constructed adjacent to the stage (Gunners wing), in the courtyard between the theatre and football ground. The backstage annex (Gunners wing) included ground floor sanitary facilities for the theatre and at first floor the backstage connected to the stage by a staircase. In 1978, a new theatre gallery was constructed together with a new projector room over the passageway connecting the parvis and the football ground. The substage was constructed in 1991, and partly excavated in rock. All these alterations were executed in stone masonry and reinforced concrete slabs.

The chapel had minor alterations from its initial construction. The main structural projects were the reconstruction of the stone masonry belfry in 1993, and the reconstruction of the parvis in 2002.

Currently the complex is used for various activities by several local parish groups including catechism.

(Source: L-Oratorju Qalb ta' Ġesù tal-Mosta, Mario Thomas Vassallo, 2016)

120 Existing buildings on/ adjacent to the site

1. **Description:** *The Catechism wing and the Gunners wing share the stone masonry party wall with the adjacent properties.*

170 Site investigation

1. *Report: Included in the tender documents.*

200 Access to the site

1. *Description: The site can be access and exited from two parvis gates from Pjazza Dun Angelo Camilleri*
2. *Limitations: Access to the Gunners wing is via a partially roofed passageway through the Sacristy wing, circa 2.3m wide and circa 2.9m high.*
3. *Access for inspections: Provide access at reasonable times for both on-site and off-site work.*

220 Use of the site

1. *General: Do not use the site for any purpose other than carrying out the Works.*
2. *Limitations: Restrictions on access times due to activities held in the premises as informed by the Client or his delegate.*

Ω End of Section

A13

Description of the work

Clauses

120 The works

1. **Description:** *Phase 1 of the redevelopment of the Oratorju Qalb ta' Ġesù Complex which include - but not limited to - the demolition of the existing two storey Catechism and Gunners Wings, and civil work construction of the New three storey Catechism and Gunners Wings. Succinctly the works comprise:*

New Catechism Wing (23.6 x 7.50 m and 11.2 m high)

1. *Propping of Facade for retention*
2. *Demolition of Wing except the facade to be retained.*
3. *Lowering of ground floor level*
4. *Construction of a reinforced masonry three storey building, including the construction of reinforced concrete foundations, reinforced concrete ground bearing slabs, reinforced masonry walls, reinforced concrete staircases, reinforced concrete beams and slabs*
5. *Laying of waterproofing membranes, installation of thermal board insulation and casting of concrete roof screeds.*

New Gunners Wing (8.5 x 7.1 m and 11.m high with part semi-basement 7.1 x 2.3 m and 1.2 m high)

6. *Demolition of Wing*
7. *Lowering of ground floor level*
8. *Excavation in rock*
9. *Construction of a reinforced masonry three storey building, including the construction of reinforced concrete foundations, reinforced concrete ground bearing slabs, reinforced masonry walls, reinforced concrete staircases, reinforced concrete beams and slabs*
10. *Laying of waterproofing membranes, installation of thermal board insulation and casting of concrete roof screeds.*

130 Work by others concurrent with the Contract

1. **Description:** *Conservation of the Facade of the Chapel and Sacristy wing of the Oratorju Qalb ta' Ġesù.*

Ω End of Section

A30 Tendering/ subletting/ supply

Main contract tendering

110 Scope

1. **General:** *These conditions are supplementary to those stated in the Invitation to Tender and on the form of tender.*

145 Tendering procedure

1. **General:** *In accordance with the principles of: best price-quality ratio BPQR.*
2. **Arithmetical errors:** *Pricing document is dominant.*

160 Exclusions

1. **Inability to tender:** *Immediately inform if any parts of the work as defined in the tender documents cannot be tendered.*
2. **Relevant parts of the work:** *Define those parts, stating reasons for the inability to tender.*

170 Acceptance of tender

1. **Acceptance:** *No guarantee is offered that any tender will be recommended for acceptance or be accepted, or that reasons for non acceptance will be given.*
2. **Costs:** *No liability is accepted for any cost incurred in the preparation of any tender.*

190 Period of validity

1. **Period:** *After submission or lodgement, keep tender open for consideration (unless previously withdrawn) for not less than 16 weeks.*
2. **Date for possession:** *See Conditions of Contract*

Pricing/ submission of documents

210 Preliminaries in the specification

1. *The Preliminaries/ General conditions sections (A10-A56 inclusive) have been prepared in accordance with SMM7.*

250 Priced documents

1. **Alterations:** *Do not alter or qualify the priced documents without written consent. Tenders containing unauthorised alterations or qualifications may be rejected.*
2. **Measurements:** *Where not stated, ascertain from the drawings.*
3. **Deemed included:** *Costs relating to items, which are not priced, will be deemed to have been included elsewhere in the tender.*
4. **Submit:** *With tender*

310 Tender

1. **General:** *Tenders must include for all work shown or described in the tender documents as a whole or clearly apparent as being necessary for the complete and proper execution of the Works.*

440 Bill of Quantities

1. **Content:** *An unpriced bill of quantities is included with the tender documents.*
2. **Fully priced copy:** *Submit with tender.*

480 Programme

1. **Programme of work:** *Prepare a summary showing the sequence and timing of the principal parts of the Works and periods for planning and design. Itemize any work which is excluded.*
2. **Submit:** *With tender*

490 Information release schedule

1. **Compatibility with programme:** *At the same time as submitting the proposed programme or summary, confirm that it is compatible with the Information Release Schedule.*
2. **Alternative proposals:** *If any part of the programme is not compatible with the Schedule submit alternative proposals and reasons for varying the times for release of information.*

500 Tender stage method statements

1. **Method statements:** *Prepare, describing how and when the following is to be carried out:*
 - 1.1. *Facade retention of Catechism wing.*
2. **Statements:** *Submit with the tender.*

530 Substitute products

1. **Details:** *If products of different manufacture to those specified are proposed, submit details with the tender giving reasons for each proposed substitution. Substitutions, which have not been notified at tender stage, may not be considered.*
2. **Compliance:** *Substitutions accepted will be subject to the verification requirements of clause A31/200.*

540 Quality control resources

1. **Statement:** *Describe the organisation and resources to control the quality of the Works, including the work of subcontractors.*
2. **QA staff:** *Identify in the statement the number and type of staff responsible for quality control, with details of their qualifications and duties.*
3. **Submit:** *With the Tender*

550 Health and safety information

1. **Content:** *Describe the organization and resources to safeguard the health and safety of operatives, including those of subcontractors, and of any person whom the Works may affect.*
2. **Include**
 - 2.1. *A copy of the health and safety policy document, including risk assessment procedures.*
 - 2.2. *Accident and sickness records for the past five years.*
 - 2.3. *Records of previous Health and Safety Executive enforcement action.*
 - 2.4. *Records of training and training policy.*
 - 2.5. *The number and type of staff responsible for health and safety on this project with details of their qualifications and duties.*
3. **Submit:** *With the Tender*

Subletting/ supply

630 Domestic subcontracts

1. **General:** *Comply with the Construction Industry Board 'Code of Practice for the selection of subcontractors'.*
2. **Details:** *Provide details of all subcontractors and the work for which they will be responsible.*
3. **Submit:** *With tender*

Ω End of Section

A31

Provision, content and use of documents

Definitions and interpretations

110 Definitions

1. **Meaning:** *Terms, derived terms and synonyms used in the preliminaries/ general conditions and specification are as stated here or in the appropriate referenced document.*

120 Communication

1. **Definition:** *Includes advise, inform, submit, give notice, instruct, agree, confirm, seek, provide or obtain information, consent or instructions, or make arrangements.*
2. **Format:** *In writing to the person named in clause A10/140 unless specified otherwise.*
3. **Response:** *Do not proceed until response has been received.*

130 Products

1. **Definition:** *Materials, both manufactured and naturally occurring, and goods, including components, equipment and accessories, intended for the permanent incorporation in the Works.*
2. **Includes:** *Goods, plant, materials, site materials and things for incorporation into the Works.*

135 Site equipment

1. **Definition:** *Apparatus, appliances, machinery, vehicles or things of whatsoever nature required in or about the construction for the execution and completion of the Works but not materials or other things intended to form or forming part of the Permanent Works.*
2. **Includes:** *Construction appliances, vehicles, consumables, tools, temporary works, scaffolding, cabins and other site facilities.*
3. **Excludes:** *Products and equipment or anything intended to form or forming part of the permanent works.*

140 Drawings

1. **Definitions:** *To BSRIA BG 6, 'A design framework for building services: Design activities and drawing definitions'.*
2. **CAD data:** *In accordance with ISO 19650.*

145 Contractor's choice

1. **Meaning:** *Selection delegated to the Contractor, but liability to remain with the specifier.*

150 Contractor's Design

1. **Meaning:** *Design to be carried out or completed by the Contractor and supported by appropriate contractual arrangements, to correspond with specified requirements.*

155 Submit proposals

1. **Meaning:** *Submit information in response to specified requirements.*

160 Terms used in specification

1. **Remove:** *Disconnect, dismantle as necessary and take out the designated products or work and associated accessories, fixings, supports, linings and bedding materials. Dispose of unwanted materials. Excludes removal and disposal of associated pipework, wiring, ductwork or other services.*

2. **Remediate:** Action or measures taken to lessen, clean up, remove or mitigate the existence of hazardous materials; in accordance with standards, or requirements as may be set out by statutes, rules, regulations or specification.
3. **Fix:** Receive, unload, handle, store, protect, place and fasten in position; dispose of waste and surplus packaging. To include all labour, materials and site equipment for that purpose.
4. **Supply and fix:** As above, but including supply of products, components or systems to be fixed, together with everything necessary for their fixing. All products, components or systems are to be supplied and fixed unless stated otherwise.
5. **Keep for reuse:** Do not damage designated products or work. Clean off bedding and jointing materials. Stack neatly, protect adequately and store until required by the employer/ purchaser, or until required for use in the works as instructed.
6. **Keep for recycling:** As 'keep for reuse', but relates to a naturally occurring material rather than a manufactured product.
7. **Make good:** Execute local remedial work to designated work. Make secure, sound and neat. Excludes redecoration and/ or replacement.
8. **Replace:** Supply and fix new products matching those removed. Execute work to match original new state of that removed.
9. **Repair:** Execute remedial work to restore something to its original working state. Make secure, sound and neat. Excludes redecoration and/ or replacement.
10. **Refix:** Fix removed products.
11. **Ease:** Adjust moving parts of designated products, or work to achieve free movement and good fit in open and closed positions.
12. **Match existing:** Provide products and work of the same appearance and features as the original, excluding ageing and weathering. Make joints between existing and new work as inconspicuous as possible.
13. **System:** Equipment, accessories, controls, supports and ancillary items (including installation) necessary for that section of the work to function.

170 Manufacturer and product reference

1. **Definition:** When used in this combination:
 - 1.1. **Manufacturer:** the person or legal entity under whose name or trademark the particular product, component or system is marketed
 - 1.2. **Product reference:** the proprietary brand name and/ or identifier by which the particular product, component or system is described.
2. **Currency:** References are to the particular product as specified in the manufacturer's technical literature current on the date of the invitation to tender.

200 Substitution of products

1. **Products:** If an alternative product to that specified is proposed, obtain approval before ordering the product.
2. **Reasons:** Submit reasons for the proposed substitution.
3. **Documentation:** Submit relevant information, including:
 - 3.1. manufacturer and product reference;
 - 3.2. cost;
 - 3.3. availability;
 - 3.4. relevant standards;
 - 3.5. performance;
 - 3.6. function;
 - 3.7. compatibility of accessories;
 - 3.8. proposed revisions to drawings and specification;

- 3.9. *compatibility with adjacent work;*
- 3.10. *appearance;*
- 3.11. *copy of warranty/ guarantee.*
- 4. *Alterations to adjacent work: If needed, advise scope, nature and cost.*
- 5. *Manufacturers' guarantees: If substitution is accepted, submit before ordering products.*

210 Cross references

- 1. *Accuracy: Check remainder of the annotation or item description against the terminology used in the section or clause referred to.*
- 2. *Related terminology: Where a numerical cross reference is not given, the relevant sections and clauses of the specification will apply.*
- 3. *Relevant clauses: Clauses in the referred to specification section dealing with general matters, ancillary products and execution also apply.*
- 4. *Discrepancy or ambiguity: Before proceeding, obtain clarification or instructions.*

220 Referenced documents

- 1. *Conflicts: Specification prevails over referenced documents.*

230 Equivalent products

- 1. *Inadvertent omission: Wherever products are specified by proprietary name the phrase 'or equivalent' is to be deemed included.*

240 Substitution of standards

- 1. *Specification to British Standard or European Standard: Substitution may be proposed complying with a grade or category within a national standard of another Member State of the European Community or an international standard recognised in the UK.*
- 2. *Before ordering: Submit notification of all such substitutions.*
- 3. *Documentary evidence: Submit for verification when requested as detailed in clause A31/200. Any submitted foreign language documents must be accompanied by certified translations into English.*

250 Currency of documents and information

- 1. *Currency: References to published documents are to the editions, including amendments and revisions, current on the date of the Invitation to Tender.*

260 Sizes

- 1. *General dimensions: Products are specified by their co-ordinating sizes.*
- 2. *Timber: Cross section dimensions shown on drawings are:*
 - 2.1. *Target sizes as defined in BS EN 336 for structural softwood and hardwood sections.*
 - 2.2. *Finished sizes for non-structural softwood or hardwood sawn and further processed sections.*

Documents provided on behalf of employer

410 Additional copies of the drawings/ documents

- 1. *Additional copies: Issued On request and charged to the Contractor..*

440 Dimensions

- 1. *Scaled dimensions: Do not rely on.*

450 Measured quantities

1. *Ordering products and constructing the Works: The accuracy and sufficiency of the measured quantities is not guaranteed.*
2. *Precedence: The specification and drawings shall override the measured quantities.*

460 The specification

1. *Coordination: All sections must be read in conjunction with Main Contract Preliminaries/ General conditions.*

Documents provided by contractor/ subcontractors/ suppliers

510 Changes/ amendments to Employer's requirements

1. *Contractor's changes to Employer's Requirements: Support request for substitution or variation with all relevant information.*
2. *Employer's amendments to Employer's Requirements: If considered to involve a variation, which has not already been acknowledged as a variation, notify without delay (maximum period 7 days), and do not proceed until instructed. Claims for extra cost, if made after the variation has been carried out, may not be allowed.*
3. *Submit: two copies*

610 Production information

1. *Contractor/ Domestic subcontractor provide: Bar Bending Schedule of all steel reinforcement either cross-referenced with the corresponding reinforcement drawing or provide shop drawing of the steel reinforcement.*
2. *Submit*
 - 2.1. *For comment and make any necessary amendments.*
 - 2.2. *Sufficient copies of final version for distribution to all affected parties.*

630 Technical literature

1. *Information: Keep on site for reference by all supervisory personnel:*
 - 1.1. *Manufacturers' current literature relating to all products to be used in the Works.*
 - 1.2. *Relevant British, EN or ISO Standards.*

640 Maintenance instructions and guarantees

1. *Components and equipment: Obtain or retain copies, register with manufacturer and hand over on or before completion of the Works.*
2. *Emergency call out services: Provide telephone numbers for use after completion. Extent of cover: office hours only.*

Document/ data interchange - No Amendments

Ω End of Section

A32 Management of the works

Generally

110 Supervision

1. **General:** *Accept responsibility for coordination, supervision and administration of the Works, including subcontracts.*
2. **Coordination:** *Arrange and monitor a programme with each subcontractor, supplier, local authority and statutory undertaker, and obtain and supply information as necessary for coordination of the work.*

118 Vehicle safety requirements

1. **Vehicle equipment:** *Ensure that all vehicles have the following:*
 - 1.1. *Audible alert to other road users to the planned movement of the vehicle when the vehicle's indicators are in operation.*
 - 1.2. *Prominent signage at the rear of the vehicle to warn cyclists of the dangers of passing the vehicle on the inside.*
 - 1.3. *Properly adjusted class VI mirror/s or Fresnel lens to eliminate the near side blind spot.*
 - 1.4. *Side under run guards.*
2. **Driver training**
 - 2.1. *Drivers must be trained on vulnerable road user safety through an approved course and hold a current valid Certificate of Competence.*
 - 2.2. *Drivers must have a valid driving licence and be legally able to drive the vehicle.*
3. **Submittal date:** *Within one week of request*

120 Insurance

1. **Documentary evidence:** *Before starting work on site submit details, and/ or policies and receipts for the insurances required by the Conditions of Contract.*

130 Insurance claims

1. **Notice:** *If any event occurs which may give rise to any claim or proceeding in respect of loss or damage to the Works or injury or damage to persons or property arising out of the Works, immediately give notice to the employer/ client, the person administering the Contract on their behalf and the Insurers.*
2. **Failure to notify:** *Indemnify the employer/ client against any loss, which may be caused by failure to give such notice.*

140 Climatic conditions

1. **Information:** *Record accurately and retain:*
 - 1.1. *Daily maximum and minimum air temperatures (including overnight).*
 - 1.2. *Delays due to adverse weather, including description of the weather, types of work affected and number of hours lost.*

150 Ownership

1. **Alteration/ clearance work:** *Materials arising become the property of the Contractor except where otherwise stated. Remove from site as work proceeds.*

Programme/ progress

210 Programme

1. **Master programme:** *Within the time stated in the Appendix of the Contract form, submit in an approved form a master programme for the works, which must include details of:*
 - 1.1. *Design, production information and proposals provided by the contractor/ subcontractors/ suppliers, including inspection and checking (see section A31).*
 - 1.2. *Planning and mobilization by the contractor.*
 - 1.3. *Earliest and latest start and finish dates for each activity and identification of all critical activities.*
 - 1.4. *Running in, adjustment, commissioning and testing of all engineering services and installations*
 - 1.5. *Work resulting from instructions issued in regard to the expenditure of provisional sums (see section A54)*
 - 1.6. *Work by or on behalf of the employer and concurrent with the contract (see section A50). The nature and scope of which, the relationship with preceding and following work and any relevant limitations are suitably defined in the contract documents.*
2. **Exclusions:** *Where and to the extent that the programme implications for work which is not so defined are impossible to assess, exclude it and confirm this when submitting the programme.*
3. **Submit:** *two copies*

230 Submission of programme

1. **Further information:** *Submission of the programme will not relieve the Contractor of the responsibility to advise of the need for further drawings or details or instructions in accordance with the Contract.*

240 Notice of commencement of work

1. **Part of the work:** *Excavation work*
2. **Notice period (minimum):** *two weeks*

250 Monitoring

1. **Progress:** *Record on a copy of the programme kept on site.*
2. **Avoiding delays:** *If any circumstances arise which may affect the progress of the Works submit proposals or take other action as appropriate to minimize any delay and to recover any lost time.*

260 Site meetings

1. **General:** *Site meetings will be held to review progress and other matters arising from administration of the Contract.*
2. **Frequency:** *Every month or whenever deemed necessary by the Perit.*
3. **Location:** *On Site*
4. **Accommodation:** *Ensure availability at the time of such meetings.*
5. **Attendees:** *Attend meetings and inform subcontractors and suppliers when their presence is required.*
6. **Chairperson (who will also take and distribute minutes):** *Contract Administrator*

290 Notice of completion

1. **Requirement:** *Give notice of the anticipated dates of completion of the whole or parts of the Works.*
2. **Associated works:** *Ensure necessary access, services and facilities are complete.*
3. **Period of notice (minimum):** *One month*

310 Extensions of time

1. *Notice: When a notice of the cause of any delay or likely delay in the progress of the Works is given under the Contract, written notice must also be given of all other causes which apply concurrently.*

Control of cost

420 Removal/ replacement of existing work

1. *Extent and location: Agree before commencement.*
2. *Execution: Carry out in ways that minimize the extent of work.*

440 Measurement

1. *Covered work: Give notice before covering work required to be measured.*

Ω End of Section

A33 Quality standards/ control

Standards of products and executions

110 Incomplete documentation

1. General: *Where and to the extent that products or work are not fully documented, they are to be:*
 - 1.1. *Of a kind and standard appropriate to the nature and character of that part of the Works where they will be used.*
 - 1.2. *Suitable for the purposes stated or reasonably to be inferred from the project documents.*
2. Contract documents: *Omissions or errors in description and/ or quantity shall not vitiate the Contract nor release the Contractor from any obligations or liabilities under the Contract.*

120 Workmanship skills

1. Operatives: *Appropriately skilled and experienced for the type and quality of work.*
2. Registration: *With Construction Skills Certification Scheme.*
3. Verification: *When requested, operatives must produce evidence of skills/ qualifications.*

130 Quality of products

1. Generally: *New. (Proposals for recycled products may be considered).*
2. Supply of each product: *From the same source or manufacturer.*
3. Whole quantity of each product required to complete the Works: *Consistent kind, size, quality and overall appearance.*
4. Tolerances: *Where critical, measure a sufficient quantity to determine compliance.*
5. Deterioration: *Prevent. Order in suitable quantities to a programme and use in appropriate sequence.*

135 Quality of execution

1. Generally: *Fix, apply, install or lay products securely, accurately, plumb, neatly and in alignment.*
2. Colour batching: *Do not use different colour batches where they can be seen together.*
3. Dimensions: *Check on-site dimensions.*
4. Finished work: *Not defective, e.g. not damaged, disfigured, dirty, faulty, or out of tolerance.*
5. Location and fixing of products: *Adjust joints open to view so they are even and regular.*

140 Evidence of Compliance

1. Proprietary products: *Retain on site evidence that the proprietary product specified has been supplied.*
2. Performance specification: *Submit evidence of compliance, including test reports indicating:*
 - 2.1. *Properties tested.*
 - 2.2. *Pass/ fail criteria.*
 - 2.3. *Test methods and procedures.*
 - 2.4. *Test results.*
 - 2.5. *Identity of testing agency.*
 - 2.6. *Test dates and times.*
 - 2.7. *Identities of witnesses.*
 - 2.8. *Analysis of results.*

150 Inspections

1. **Products and executions:** *Inspection or any other action must not be taken as approval unless confirmed in writing referring to:*
 - 1.1. *Date of inspection.*
 - 1.2. *Part of the work inspected.*
 - 1.3. *Respects or characteristics which are approved.*
 - 1.4. *Extent and purpose of the approval.*
 - 1.5. *Any associated conditions.*

160 Related work

1. **Details:** *Provide all trades with necessary details of related types of work. Before starting each new type or section of work ensure previous related work is:*
 - 1.1. *Appropriately complete.*
 - 1.2. *In accordance with the project documents.*
 - 1.3. *To a suitable standard.*
 - 1.4. *In a suitable condition to receive the new work.*
2. **Preparatory work:** *Ensure all necessary preparatory work has been carried out.*

170 Manufacturer's recommendations/ instructions

1. **General:** *Comply with manufacturer's printed recommendations and instructions current on the date of the Invitation to tender.*
2. **Exceptions:** *Submit details of changes to recommendations or instructions.*
3. **Execution:** *Use ancillary products and accessories supplied or recommended by main product manufacturer.*
4. **Products:** *Comply with limitations, recommendations and requirements of relevant valid certificates.*

180 Water for the works

1. **Mains supply:** *Clean and uncontaminated.*
2. **Other:** *Do not use until:*
 - 2.1. *Evidence of suitability is provided.*
 - 2.2. *Tested to BS EN 1008 if instructed.*

Samples/ approvals

210 Samples

1. **Products or executions:** *Comply with all other specification requirements and in respect of the stated or implied characteristics either:*
 - 1.1. *To an express approval.*
 - 1.2. *To match a sample expressly approved as a standard for the purpose.*

220 Approval of products

1. **Submissions, samples, inspections and tests:** *Undertake or arrange to suit the Works programme.*
2. **Approval:** *Relates to a sample of the product and not to the product as used in the Works. Do not confirm orders or use the product until approval of the sample has been obtained.*
3. **Complying sample:** *Retain in good, clean condition on site. Remove when no longer required.*

230 Approval of execution

1. Submissions, samples, inspections and tests: *Undertake or arrange to suit the Works programme.*
2. Approval: *Relates to the stated characteristics of the sample. (If approval of the finished work as a whole is required this is specified separately). Do not conceal, or proceed with affected work until compliance with requirements is confirmed.*
3. Complying sample: *Retain in good, clean condition on site. Remove when no longer required.*

Accuracy/ setting out generally

320 Setting out

1. General: *Submit details of methods and equipment to be used in setting out the Works.*
2. Levels and dimensions: *Check and record the results on a copy of drawings. Notify discrepancies and obtain instructions before proceeding.*
3. Inform: *When complete and before commencing construction.*

330 Appearance and fit

1. Tolerances and dimensions: *If likely to be critical to execution or difficult to achieve, as early as possible either:*
 - 1.1. *Submit proposals; or*
 - 1.2. *Arrange for inspection of appearance of relevant aspects of partially finished work.*
2. General tolerances (maximum): *To BS 5606, tables 1 and 2.*

340 Critical dimensions

1. Critical dimensions: *Set out and construct the Works to ensure compliance with the tolerances stated.*
2. Location: *Detailed on drawings The Structural floor levels of each floor in relation to the existing Catechism Wing facade to be retained.*

350 Levels of structural floors

1. *Maximum tolerances for designed levels to be*
 - 1.1. *Floors to be self-finished, and floors to receive sheet or tile finishes directly bedded in adhesive: +/- 10 mm.*
 - 1.2. *Floors to receive dry board/ panel construction with little or no tolerance on thickness: +/- 10 mm.*
 - 1.3. *Floors to receive mastic asphalt flooring/ underlays directly: +/- 10 mm.*
 - 1.4. *Floors to receive mastic asphalt flooring/ underlays laid on mastic asphalt levelling coat(s): +/- 15 mm.*
 - 1.5. *Floors to receive fully bonded screeds/ toppings/ beds: +/- 15 mm.*
 - 1.6. *Floors to receive unbonded or floating screeds/ beds: +/- 20 mm.*

360 Record drawings

1. Site setting out drawing: *Record details of all grid lines, setting-out stations, benchmarks and profiles. Retain on site throughout the Contract and hand over on completion.*

Services generally - No Amendments

Supervision/ inspection/ defective work

510 Supervision

1. **General:** *In addition to the constant management and supervision of the Works provided by the Contractor's person in charge, all significant types of work must be under the close control of competent trade supervisors to ensure maintenance of satisfactory quality and progress.*
2. **Evidence:** *Submit, including details of the person proposed, their relevant skills training and knowledge; practical experience; qualifications; membership or registration with professional bodies; employment history, work related assessments and management structure.*
3. **Submittal date:** *One month before start on site*
4. **Replacement:** *Give maximum possible notice before changing person in charge or site agent.*

540 Defects in existing work

1. **Undocumented defects:** *When discovered, immediately give notice. Do not proceed with affected related work until response has been received.*
2. **Documented remedial work:** *Do not execute work which may:*
 - 2.1. *Hinder access to defective products or work; or*
 - 2.2. *Be rendered abortive by remedial work.*

550 Access for inspection

1. **Removal:** *Before removing scaffolding or other facilities for access, give notice of not less than one week.*

560 Tests and inspections

1. **Timing:** *Agree and record dates and times of tests and inspections to enable all affected parties to be represented.*
2. **Confirmation:** *One working day prior to each such test or inspection. If sample or test is not ready, agree a new date and time.*
3. **Records:** *Submit a copy of test certificates and retain copies on site.*

610 Proposals for rectification of defective products/ executions

1. **Proposals:** *Immediately any execution or product is known, or appears, to be not in accordance with the Contract, submit proposals for opening up, inspection, testing, making good, adjustment of the Contract Sum, or removal and re-execution.*
2. **Acceptability:** *Such proposals may be unacceptable and contrary instructions may be issued.*

620 Measures to establish acceptability

1. **General:** *Wherever inspection or testing shows that the work, materials or goods are not in accordance with the contract and measures (e.g. testing, opening up, experimental making good) are taken to help in establishing whether or not the work is acceptable, such measures:*
 - 1.1. *Will be at the expense of the Contractor.*
 - 1.2. *Will not be considered as grounds for revision of the completion date.*

630 Quality control

1. **Procedures:** *Establish and maintain to ensure that the Works, including the work of subcontractors, comply with specified requirements.*
2. **Records:** *Maintain full records, keep copies on site for inspection, and submit copies on request.*
3. **Content of records**

- 3.1. *Identification of the element, item, batch or lot including location in the Works.*
- 3.2. *Nature and dates of inspections, tests and approvals.*
- 3.3. *Nature and extent of nonconforming work found.*
- 3.4. *Details of corrective action.*

Work at or after completion

710 Work before completion

1. *General: Make good all damage consequent upon the Works.*
2. *Temporary markings, coverings and protective wrappings: Remove unless otherwise instructed.*
3. *Cleaning: Clean the Works thoroughly inside and out, including all accessible ducts and voids. Remove all splashes, deposits, efflorescence, rubbish and surplus materials.*
4. *Cleaning materials and methods: As recommended by manufacturers of products being cleaned, and must not damage or disfigure other materials or construction.*
5. *COSHH dated data sheets: Obtain for all materials used for cleaning and ensure they are used only as recommended by their manufacturers.*
6. *Minor faults: Touch up in newly painted work, carefully matching colour and brushing out edges. Repaint badly marked areas back to suitable breaks or junctions.*
7. *Moving parts of new work: Adjust, ease and lubricate as necessary to ensure easy and efficient operation, including doors, windows, drawers, ironmongery, appliances, valves and controls.*

720 Security at completion

1. *General: Leave the Works secure with, where appropriate, all accesses closed and locked.*
2. *Keys: Account for and adequately label all keys, and hand over together with an itemized schedule, retaining duplicate schedule signed as a receipt.*

730 Making good defects

1. *Remedial work: Arrange access with Employer.*
2. *Rectification: Give reasonable notice for access to the various parts of the Works.*
3. *Completion: Notify when remedial works have been completed.*

Ω End of Section

A34 Security/ safety/ protection

Security, health and safety

110 Pre-construction information

1. **Location:** *Integral with the project Preliminaries, including but not restricted to the following sections:*
 - 1.1. **Description of project:** *Sections A10 and A11.*
 - 1.2. **Client's consideration and management requirements:** *Sections A12, A13 and A36.*
 - 1.3. **Environmental restrictions and on-site risks:** *Section A12, A35 and A34.*
 - 1.4. **Significant design and construction hazards:** *Section A34.*

140 Demolition/Excavation/Construction Method Statements

1. **Submission:** *Present to the employer/ client no later than six weeks before commencement of works on site.*
2. **Confirmation:** *Do not start construction work until the employer has confirmed in writing that the Demolition/Excavation/Construction Method Statements required by SL 623.06 - Avoidance of Damage to Third Party Property Regulations, are approved by the Building & Construction Authority.*
3. **Content:** *Develop each Method Statement from, and draw on, the outline construction phase health and safety plan, clause A30/570, and the pre-tender health and safety plan/ pre-construction information.*

150 Security

1. **Protection:** *Safeguard the site, the Works, products, materials, and any existing buildings affected by the Works from damage and theft.*
2. **Access:** *Take all reasonable precautions to prevent unauthorized access to the site, the Works and adjoining property.*
3. **Special requirements:**

160 Stability

1. **Responsibility:** *Maintain the stability and structural integrity of the works and adjacent structures during the contract.*
2. **Design loads:** *Obtain details, support as necessary and prevent overloading.*

170 Occupied premises

1. **Extent:** *Existing buildings will be occupied and/ or used during the contract as follows: The Chapel, Sacristy wing and theatre as per Mosta Parish requirements.*
2. **Works:** *Carry out without undue inconvenience and nuisance and without danger to occupants and users.*
3. **Overtime:** *If compliance with this clause requires certain operations to be carried out during overtime, and such overtime is not required for any other reason, the extra cost will be allowed, provided that such overtime is authorized in advance.*

210 Safety provisions for site visits

1. **Safety:** *Submit details in advance of safety provisions and procedures (including those relating to materials, which may be deleterious), which will require their compliance when visiting the site.*
2. **Protective clothing and/ or equipment:** *Provide and maintain on site for visitors to the-site.*

Protect against the following

310 Explosives

1. Use: *Not permitted.*

330 Noise and vibration

1. **Standard:** *Comply with the recommendations of BS 5228-1, in particular clause 7.3, to minimize noise levels during the execution of the Works.*
2. **Noise levels from the Works:** *Maximum level: 85 dB(A) when measured from site boundary.*
3. **Equipment:** *Fit compressors, percussion tools and vehicles with effective silencers of a type recommended by manufacturers of the compressors, tools or vehicles.*
4. **Restrictions:** *Do not use:*
 - 4.1. *Percussion tools and other noisy appliances without consent during the hours of 12.00 pm to 3.00pm.*
 - 4.2. *Radios or other audio equipment or permit employees to use in ways or at times that may cause nuisance.*

340 Pollution

1. **Prevention:** *Protect the site, the works and the general environment (including the atmosphere, land, streams and waterways) against pollution.*
2. **Contamination:** *If pollution occurs, report immediately, including to the appropriate authorities, and provide relevant information.*

350 Pesticides

1. Use: *Not permitted.*

360 Nuisance

1. **Duty:** *Prevent nuisance from smoke, dust, rubbish, vermin and other causes.*
2. **Surface water:** *Prevent hazardous build-up on-site, in excavations and to surrounding areas and roads.*

370 Asbestos containing materials

1. **Duty:** *Report immediately any suspected materials discovered during execution of the works.*
 - 1.1. *Do not disturb.*
 - 1.2. *Agree methods for safe removal or encapsulation.*

371 Dangerous or hazardous substances

1. **Duty:** *Report immediately suspected materials discovered during execution of the works.*
 - 1.1. *Do not disturb.*
 - 1.2. *Agree methods for safe removal or remediation.*

380 Fire prevention

1. **Duty:** *Prevent personal injury or death, and damage to the Works or other property from fire.*
2. **Standard:** *Comply with Joint Code of Practice 'Fire Prevention on Construction Sites', published by Construction Industry Publications and The Fire Protection Association (The 'Joint Fire Code').*

390 Smoking on-site

1. **Smoking on-site:** *Not permitted.*

400 Burning on-site

1. **Burning on-site:** *Not permitted.*

410 Moisture

1. **Wetness or dampness:** *Prevent, where this may cause damage to the Works.*
2. **Drying out:** *Control humidity and the application of heat to prevent:*
 - 2.1. *Blistering and failure of adhesion.*
 - 2.2. *Damage due to trapped moisture.*
 - 2.3. *Excessive movement.*

430 Waste

1. **Waste:** *Includes rubbish, debris, spoil, containers and packaging, and surplus material requiring disposal.*
2. **Requirement:** *Minimize production and prevent accumulation of waste. Keep the site and works clean and tidy. Clean out voids and cavities in the construction before closing.*
3. **Disposal:** *Collect and store in suitable containers. Remove from site and dispose of in a safe and competent manner, as approved and directed by the waste regulation authority.*
4. **Recyclable material:** *Sort and dispose of at a materials recycling facility approved by the waste regulation authority.*
5. **Documentation:** *Retain on-site.*

440 Electromagnetic interference

1. **Duty:** *Prevent excessive electromagnetic disturbance to apparatus outside the site.*

450 Laser equipment

1. **Construction laser equipment:** *Install, use and store in accordance with BS EN 60825-1 and the manufacturer's instructions.*
2. **Class 1 or Class 2 laser equipment:** *Ensure laser beam is not set at eye level and is terminated at the end of its useful path.*
3. **Class 3A and Class 3B laser equipment:** *Do not use without approval and subject to submission of a method statement on its safe use.*

460 Powder actuated fixing systems

1. **Use:** *Not permitted.*

470 Invasive species

1. **General:** *Prevent the spread of species (e.g. plants or animals) that may adversely affect the site or works economically, environmentally or ecologically.*
2. **Duty:** *Report immediately any suspected invasive species discovered during execution of the works.*
 - 2.1. *Do not disturb.*
 - 2.2. *Agree methods for safe eradication or removal.*

Protect the following

510 Existing services

1. **Confirmation:** *Notify all service authorities, statutory undertakers and/ or adjacent owners of proposed works not less than one week before commencing site operations.*

2. **Identification:** *Before starting work, check and mark positions of utilities/ services. Where positions are not shown on drawings obtain relevant details from service authorities, statutory undertakers or other owners.*
3. **Work adjacent to services**
 - 3.1. *Comply with service authority's/ statutory undertaker's recommendations.*
 - 3.2. *Adequately protect, and prevent damage to services: Do not interfere with their operation without consent of service authorities/ statutory undertakers or other owners.*
4. **Identifying services**
 - 4.1. *Below ground: Use signboards, giving type and depth;*
 - 4.2. *Overhead: Use headroom markers.*
5. **Damage to services:** *If any results from execution of the Works:*
 - 5.1. *Immediately give notice and notify appropriate service authority/ statutory undertaker.*
 - 5.2. *Make arrangements for the work to be made good without delay to the satisfaction of service authority/ statutory undertaker or other owner as appropriate.*
 - 5.3. *Any measures taken to deal with an emergency will not affect the extent of the Contractor's liability.*
6. **Marker tapes or protective covers:** *Replace, if disturbed during site operations, to service authority's/ statutory undertakers recommendations.*

520 Roads and footpaths

1. **Duty:** *Maintain roads and footpaths within and adjacent to the site and keep clear of mud and debris.*
2. **Damage caused by site traffic or otherwise consequent upon the Works:** *Make good to the satisfaction of the Employer, Local Authority or other owner.*

560 Existing features

1. **Protection:** *Prevent damage to existing buildings, fences, gates, walls, roads, paved areas and other site features, which are to remain in position during execution of the Works.*

570 Existing work

1. **Protection:** *Prevent damage to existing work, structures or other property during the course of the work.*
2. **Removal:** *Minimum amount necessary.*
3. **Replacement work:** *To match existing.*

580 Building interiors

1. **Protection:** *Prevent damage from exposure to the environment, including weather, flora, fauna, and other causes of material degradation during the course of the work.*

620 Adjoining property

1. **Permission:** *Obtain as necessary from owners if requiring to erect scaffolding on or otherwise use adjoining property.*

625 Adjoining property restrictions

1. **Precautions**
 - 1.1. *Prevent trespass of workpeople and take precautions to prevent damage to adjoining property.*
 - 1.2. *Pay all charges.*
 - 1.3. *Remove and make good on completion or when directed.*
2. **Damage:** *Bear cost of repairing damage arising from execution of the Works.*

630 Existing structures

1. **Duty:** *Check proposed methods of work for effects on adjacent structures inside and outside the site boundary.*
2. **Supports:** *During execution of the Works:*
 - 2.1. *Provide and maintain all incidental shoring, strutting, needling and other supports as may be necessary to preserve stability of existing structures on the site or adjoining that may be endangered or affected by the Works.*
 - 2.2. *Do not remove until new work is strong enough to support existing structure.*
 - 2.3. *Prevent overstressing of completed work when removing supports.*
3. **Adjacent structures:** *Monitor and immediately report excessive movement.*
4. **Standard:** *Comply with BS 5975 and BS EN 12812.*

640 Materials for recycling/ reuse

1. **Duty:** *Sort and prevent damage to stated products or materials, clean off bedding and jointing materials and other contaminants.*
2. **Storage:** *Stack neatly and protect until required by the Employer or for use in the Works as instructed.*

Ω End of Section

A35

Specific limitations on method/ sequence/ timing

Clauses

110 Scope

1. *General: The limitations described in this section are supplementary to limitations described or implicit in information given in other sections or on the drawings.*

130 Method/ sequence of work

1. *Specific Limitations: Include the following in the programme:*
 - 1.1. *Daily cleaning of parvis, passageway connecting the parvis to the football ground, and courtyard between the theatre and football ground from construction debris and waste .*
 - 1.2. *Tower cranes cannot be erected in the parvis and in the football ground.*

170 Working Hours

1. *Specific limitations: No work on the Gunners Wing can be performed after 3:30pm.*

180 Completion in sections or in parts

1. *General: Where the Employer is to take possession of any Section or part of the Works and such Section or part will, after its practical completion, depend for its adequate functioning on work located elsewhere on the site: Complete such other work in time to permit such possession to take place.*
2. *Remainder of the Works: During execution, ensure that completed Sections or parts of the Works have continuous and adequate provision of services, fire precautions, means of escape and safe access.*

Ω End of Section

A36 Facilities/ temporary work/ services

Generally

110 Spoil heaps, temporary works and services

1. Location: *Give notice and details of intended siting.*
2. Maintenance: *Alter, adapt and move as necessary. Remove when no longer required and make good.*

Accommodation - No Amendments

Temporary works

320 Temporary works

1. Employer's specific requirements: *Provide: Fencing to separate entrance to the Catechism wing from the Parvis.*

340 Name boards/ advertisements

1. Name boards/ advertisements: *Not permitted.*

Services and facilities

420 Lighting and power

1. Supply: *Electricity from the existing mains may be used for the Works as follows:*
 - 1.1. Metering: *Free of charge*
 - 1.2. Point of supply: *Sacristy at Sacristy Wing*
 - 1.3. Current: *Alternating.*
2. Continuity: *No responsibility will be accepted for the consequences of failure or restriction in supply.*

430 Water

1. Supply: *The existing mains may be used for the Works as follows:*
 - 1.1. Metering: *Free of charge*
 - 1.2. Source: *Water Services Corporation*
 - 1.3. Location of supply point: *Gate in front of Sacristy Wing passageway*
2. Continuity: *No responsibility will be accepted for the consequences of failure or restriction in supply.*

440 Mobile telephones

1. Direct communication: *As soon as practicable after the start on site:*
 - 1.1. *provide the Contractor's person in charge with a mobile telephone.*
 - 1.2. *pay all charges reasonably incurred.*

Ω End of Section

B50

General structural requirements

Tendering - Not Used

General

110 Eurocodes

4. **National Annexes:** Reference to a Eurocode, or to an execution or a material standard referenced therein, is deemed to include the appropriate United Kingdom National Annex, to the Eurocode or referenced standard. Nationally determined parameters shall apply. Non-contradictory complementary information: Applies when referenced in the National Annex.
5. **Substitution of alternative design rules for Eurocode Application Rules:** Not permitted

120 Structural work

6. **Designated codes of practice:** To the Eurocodes appropriate to the nature of the structure
7. **Design working life:** Category 4 to MSA EN 1990
8. **Completed structure generally:** To comply with the requirements of the designated codes of practice and the standards referenced therein. Deflections and other structural movements at serviceability limit state to be compatible with requirements of the building fabric, movement joints and weathertightness.
9. **Special requirements:** None

150 Ground investigation report

6. **Requirement:** Confirm acceptance of geotechnical proposals as appropriate for the particular ground conditions or submit alternative proposals, accepting full responsibility for them
7. **Datum for borehole logs:** Existing ground level
8. **Obstructions and voids:** None known

Performance

250 Limits on movement generated by construction

6. **Definition of critical values**
 - 6.1. **Threshold value:** The value beyond which further movement will be of significant concern.
 - 6.2. **Action value:** The value at which execution must cease.
7. **Precautions:** Take as follows if movements reach critical values:
 - 7.1. **Threshold:** Review situation, assess possible causes and submit proposals to ensure that action values are not exceeded.
 - 7.2. **Action:** Stop work, report and revise working procedures to prevent further movements.

280 Settlement of existing structures

5. **Location:** Any part of Existing Catechism Wing Facade that is to be retained
6. **Action values:** Tilt of 1/1000
7. **Threshold values:** 65% of action values

290 Lateral displacement of existing structures

6. **Location:** Any part of Existing Catechism Wing Facade that is to be retained
7. **Action values:** Tilt of 1/1000
8. **Threshold values:** 65% of action values

310 Damage to existing structures and services

6. Permissible damage criteria
 - 6.1. Structures: No damage permitted
 - 6.2. Services: No damage permitted

320 Loads/ actions

2. Generally: Specified loads/ actions are characteristic values unless otherwise described.

480 Wind loads/ actions – additional requirements for facade retention

2. Standard: To BS EN 1991-1-4.
3. Seasonal factor (C_{season}): 1
4. Condition of openings in facade: All openings unblocked
5. Working wind speed
 - 5.1. Definition: The wind speed at which site activities that could cause impact with the facade/ retention structure will cease.
 - 5.2. Magnitude: 18 m/sec
 - 5.3. Use: Defines maximum wind loads to be used in load combinations including accidental actions.

510 Accidental loading of facade/ facade retention structure

2. Requirement: Either impose restrictions on movement of site plant, cranes, etc. or allow for impact loads

Execution

700 Execution generally

2. Standard: Report conflict between specification and the designated codes of practice and the standards referenced therein before ordering affected materials or executing affected work.
3. Inspection levels: To MSA EN 1990, Table B5, level IL2.
 - 3.1. Special requirements: None
4. Quality control: Submit proposals
5. Tolerances: Notwithstanding tolerances specified elsewhere, do not exceed requirements for compliance with the designated code.

705 Connections and anchorages

8. End and edge distances and spacing (minimum): Unless otherwise specified or detailed, as required by the designated code of practice for fixings/ anchorages carrying maximum load.
9. Report locations where
 - 9.1. Type and number of fixings cannot be accommodated.
 - 9.2. Size or position of members prevents correct positioning.

720 Stability during execution

2. Permanent bracing system:
 - 2.1. Vertical: Masonry walls
 - 2.2. Horizontal: Reinforced concrete floors
3. Temporary bracing/ restraints: Provide as necessary until permanent bracing system is complete and sufficiently mature to carry loads and all connections have been made to the permanent system.

- 3.1. **Special requirements:** None
- 4. **Design loads:** Structure has been designed for the completed state.
 - 4.1. **Magnitude:** Submit proposals
- 5. **Before loading structure:** Take into account:
 - 5.1. Reduction in strength due to immaturity of elements.
 - 5.2. Reduction in loadbearing capacity due to partial completion of continuous elements.

740 Condition survey of existing buildings and structures

- 2. **Application:** The Chapel and Theatre of the Oratorju Qalb ta' Ġesù.
- 3. **Before starting work:** Survey structure. Record and take photographs of damaged or defective areas.
 - 3.1. **Items to be recorded:** Location, extent and magnitude of cracks, spalling, indications of movement, previous repairs, modifications and other irregularities of the fabric.
 - 3.2. **Additional investigations:** None
- 4. **Information supplied:** Condition survey dated 30th September 2022. Give notice of areas of variance
- 5. **Report:** Submit for comment.
 - 5.1. **Include recommendations:** None required

760 Monitoring of existing buildings/ structures

- 4. **Application:** The Chapel and Theatre of the Oratorju Qalb ta' Ġesù.
- 5. **Requirement:** Visually inspect buildings/ structures for signs of movement, cracking or other indications of distress.
- 6. **Period of inspection:** Commence at start of demolition and continue until construction of ground floor walls
- 7. **Frequency of inspection:** Twice daily until one week after completion of lowering of ground level and excavation, thereafter fortnightly.
- 8. **Record:** Date and time of inspections.
- 9. **Action:** If movement cracking or other signs of distress are noted stop work, investigate and report.

770 Movement monitoring

- 3. **Description:** OF CATECHISM FACADE AND FACADE RETENTION STRUCTURE
- 4. **Application:** Facade and facade retention structures described in section C30
- 5. **Survey points:** Agree number and location of survey points and record initial positions to enable monitoring of:
 - 5.1. **Movements:** Verticality/ Tilt
- 6. **Method:** Permanent plumb lines with damped plumb bob
 - 6.1. **Accuracy of reading:** Verticality/ Tilt: ± 1 mm
- 7. **Special requirements:** Visually inspect structure each day

790 Frequency of monitoring

- 2. **Description:** FACADE AND FACADE RETENTION STRUCTURE
- 3. **Initial readings:** Agree and record as soon as responsibility is assumed for the retention structure and facade, compare results with readings taken by the advance works contractor, investigate anomalies and report.
- 4. **Frequency of readings:** Weekly
- 5. **Increase frequency of readings if**

- 5.1. Movements accelerate.
- 5.2. Trend of movements changes unexpectedly.
- 6. Additional readings
 - 6.1. A single set: Immediately following impact on facade or supporting structure.
 - 6.2. Increase frequency of readings: Daily until two consecutive sets of readings are stable and consistent when survey points are first established and again when retention structure is complete
- 7. Period of monitoring: Until facade is tied back to new structure

Completion - Not Used

Ω End of Section

C20 Demolition

General requirements

110 Desk study/ Survey

11. **Scope:** Before starting deconstruction/ demolition work, examine available information, and carry out a survey of:
 - 11.1. the structure or structures to be deconstructed/ demolished,
 - 11.2. the site on which the structure or structures stand, and
 - 11.3. the surrounding area.
12. **Report and method statements:** Submit, describing:
 - 12.1. Form, condition and details of the structure or structures, the site, and the surrounding area.
 - 12.1.1. **Extent:** As drawing AL(1-)100
 - 12.2. Type, location and condition of features of historical, archaeological, geological or ecological importance.
 - 12.3. Type, location and condition of adjoining or surrounding premises that might be adversely affected by removal of the structure or structures, or by noise, vibration and/ or dust generated during deconstruction/ demolition.
 - 12.4. Identity and location of services above and below ground, including those required for the Contractor's use, and arrangements for their disconnection and removal.
 - 12.5. Form and location of flammable, toxic or hazardous materials, including lead-based paint, and proposed methods for their removal and disposal.
 - 12.6. Form and location of materials identified for reuse or recycling, and proposed methods for removal and temporary storage.
 - 12.7. Proposed programme of work, including sequence and methods of deconstruction/ demolition.
 - 12.8. Details of specific pre-weakening required.
 - 12.9. Arrangements for protection of personnel and the general public, including exclusion of unauthorized persons.
 - 12.10. Arrangements for control of site transport and traffic.
 - 12.11. **Special requirements:** Details of services supplied by the Statutory Authority
13. **Format of report:** Electronic submission including digital photographs.

120 Extent of deconstruction/ demolition

2. **General:** Subject to retention requirements specified elsewhere, deconstruct/ demolish structures down to foundation level: Break up and dig out foundations.

130 Groundworks

2. **Old foundations, slabs and the like:** Break out in locations and to the extents stated.
3. **Contaminated material:** Remove, and carry out remediation required by the Enforcing Authority.

140 Bench marks

3. **Unrecorded bench marks and other survey information:** Give notice when found. Do not remove marks or destroy the fabric on which they are found.

150 Features to be retained

3. **General:** Keep in place and protect the following: Catechism wing described in section C30.

Services affected by deconstruction/ demolition

210 Services regulations

3. **Work carried out to or affecting new and/ or existing services:** Carry out in accordance with the byelaws and/ or regulations of the relevant Statutory Authority.

220 Location of services

3. **Services affected by deconstruction/ demolition work:** Locate and mark positions.
4. **Mains services marking:** Arrange with the appropriate authorities for services to be located and marked.
 - 4.1. **Marking standard:** In accordance with National Joint Utilities Group 'Guidelines on the positioning and colour coding of underground utilities' apparatus'.

231 Services disconnection arranged by employer

2. **General:** The Employer will arrange with the appropriate authorities for disconnection of services and removal of fittings and equipment owned by those authorities prior to deconstruction/ demolition, as follows:
3. **Timing:** Do not start deconstruction/ demolition until disconnections are completed.

240 Disconnection of drains

5. **General:** Locate, disconnect and seal disused foul and surface water drains.
6. **Sealing:** Permanent, and within the site.

250 Live foul and surface water drains

2. **Drains and associated manholes, inspection chambers, gullies, vent pipes and fittings**
 - 2.1. Protect; maintain normal flow during deconstruction/ demolition.
 - 2.2. Make good any damage arising from deconstruction/ demolition work.
 - 2.3. Leave clean and in working order at completion of deconstruction/ demolition work.
3. **Other requirements:**

260 Service bypass connections

3. **General:** Provide as necessary to maintain continuity of services to occupied areas of the site on which the deconstruction/ demolition is taking place and to adjoining sites/ properties.
4. **Minimum notice to adjoining owners and all affected occupiers:** 72 hours, if shutdown is necessary during changeover.

270 Services to be retained

3. **Damage to services:** Give notice, and notify relevant service authorities and/ or owner/ occupier regarding damage arising from deconstruction/ demolition.
4. **Repairs to services:** Complete as directed, and to the satisfaction of the service authority or owner.

Deconstruction/ demolition work

310 Workmanship

3. **Standard:** Demolish structures in accordance with BS 6187.
4. **Operatives**
 - 4.1. Appropriately skilled and experienced for the type of work.
 - 4.2. Holding, or in training to obtain, relevant CITB Certificates of Competence.

5. **Site staff responsible for supervision and control of work:** Experienced in the assessment of risks involved and methods of deconstruction/ demolition to be used.

330 Dust control

3. **General:** Reduce airborne dust by periodically spraying deconstruction/ demolition works with an appropriate wetting agent. Keep public roadways and footpaths clear of mud and debris.
4. **Lead dust:** Submit method statement for control, containment and clean-up regimes.

340 Health hazards

3. **Precautions:** Protect site operatives and general public from hazards associated with vibration, dangerous fumes and dust arising during the course of the Works.

350 Adjoining property

4. **Temporary support and protection:** Provide. Maintain and alter, as necessary, as work proceeds. Do not leave unnecessary or unstable projections.
5. **Defects:** Report immediately on discovery.
6. **Damage:** Minimize. Repair promptly to ensure safety, stability, weather protection and security.
7. **Support to foundations:** Do not disturb.

360 Structures to be retained

4. **Extent:** As drawings SL(1-)201 to 205, and SL(1-)301 to 302.
5. **Parts which are to be kept in place:** Protect.
6. **Interface between retained structures and deconstruction/ demolition:** Cut away and strip out with care to minimize making good.

370 Partly demolished structures

4. **General:** Leave in a stable condition, with adequate temporary support at each stage to prevent risk of uncontrolled collapse. Make secure outside working hours.
5. **Temporary works:** Prevent overloading due to debris.
6. **Access:** Prevent access by unauthorized persons.

380 Dangerous openings

2. **General:** Provide guarding at all times, including outside of working hours. Illuminate during hours of darkness.
3. **Access:** Prevent access by unauthorized persons.

391 Asbestos-containing materials – unknown occurrences

4. **Discovery:** Give notice immediately of suspected asbestos-containing materials when discovered during deconstruction/ demolition work. Avoid disturbing such materials.
5. **Removal:** Submit statutory risk assessments and details of proposed methods for safe removal.

410 Unforeseen hazards

3. **Discovery:** Give notice immediately when hazards such as unrecorded voids, tanks, chemicals, are discovered during deconstruction/ demolition.
4. **Removal:** Submit details of proposed methods for filling, removal, etc.

420 Open basements, etc

4. **Temporary support:** Leave adequate buttress walls or provide temporary support to basement retaining walls up to ground level.
5. **Safety:** Make remaining sections of retaining and buttress walls safe and secure.

6. **Water movement:** Make holes in basement floors to allow water drainage or penetration (depending on water table). Provide a hole for every 10 m², not less than 600 mm in diameter.

Materials arising

510 Contractor's property

3. **Components and materials arising from the deconstruction/ demolition work:** Property of the Contractor except where otherwise provided.
4. **Action:** Remove from site as work proceeds where not to be reused or recycled for site use.

520 Recycled materials

2. **Materials arising from deconstruction/ demolition work:** Can be recycled or reused elsewhere in the project, subject to compliance with the appropriate specification and in accordance with any site waste management plan.
3. **Evidence of compliance:** Submit full details and supporting documentation.
 - 3.1. **Verification:** Allow adequate time in programme for verification of compliance.

Ω End of Section

C30 Shoring/ facade retention

General

110 Terms used in façade retention

2. **Definitions:** As CIRIA Report, C579, 'Retention of masonry façades - best practice guide', Glossary and as follows:
 - 2.1. **Façade:** Elevations that are to be kept in place, including external elevations, internal elevations and party walls listed as requiring support.
 - 2.2. **Retention structure:** The temporary or permanent façade retention structure.

120 Retention structure generally

2. **Extent of façade:** Catechism Wing facade to extent shown on drawing SL(1-)-201 to 205, and SA(1-)-201
3. **Nature of structure:** Flying shores
4. **Position of structure:** Internal

140 Flying shores

14. **Description:** To Catechism Wing facade
15. **Structure:** Submit proposals
16. **Connection to façade:** Submit proposals
17. **Connection to existing supporting walls:** Submit proposals

160 Structural steel specification standard

3. **Standard:** Comply with latest edition of National Structural Steelwork Specification (NSSS).
 - 3.1. **Document availability:** Make available during the course of the Works at fabrication shop and on site.

180 Temporary works co-ordinator

6. **Requirement:** Appoint a suitably qualified and experienced temporary works coordinator as defined in BS 5975, section 7.
7. **Responsibilities:** To ensure:
 - 7.1. Safety of the works.
 - 7.2. Relevant features of the façade, whether known at the outset or discovered in the course of the work, are fully considered in design and construction of retention structure.
 - 7.3. Components of the design and detailing fit each other and the façade.
 - 7.4. Required actions are only undertaken when it is safe to do so, and are carried out under supervision in accordance with design and relevant standards.
 - 7.5. Liaison with the temporary works supervisors appointed by subcontractors.
8. **Period of appointment:** From commencement of Contract until retention structure has been dismantled.

System performance

210 Retention structure - contractor designed

5. **Requirements:** Design, detail, erect, monitor performance and maintain retention structure to hold façade in position without overstress or undue deflection of façade or retention structure for duration of works.

- 5.1. **Type of structure:** Flying shores as clause 140
- 5.2. **Generally:** As section B50.
- 5.3. **Modifications:** Load combinations for lateral deflection - Dead loads, plus adverse imposed loads, earth loads and wind loads.
- 5.4. **Design:** Complete in accordance with the designated code of practice to satisfy specified performance criteria.
- 5.5. **Falsework standard:** To BS EN 12812, design class B1.
- 5.6. **Monitor retention structure and façade during period of responsibility:** As section B50.
- 5.7. **Spacing of supports (maximum):** To prevent overstressing of masonry and to restrict deflection under wind loading as section B50
- 5.8. **Total movement of façade:** Restrict due to load on retention structure and façade, plus thermal effects as section B50.
- 5.9. **Additional requirements:** Safe access for work
6. **Design and production information:**
 2. List of calculations to demonstrate compliance with specified structural and functional criteria.
 3. Schedules defining location and magnitude of loads to be transmitted to supporting structure.
 4. Detail drawings showing, e.g. fixings between façade and retention structure, anchorages to foundations/ supporting walls and joint details.
 5. Method statements and quality plan for installation.
7. **Timing of submissions:**
 2. Submission of general arrangement drawings before preparing calculations and/ or fabrication drawings.
 3. Submission of member and joint calculations before preparing fabrication drawings.
 4. Submission of anchorage/ fixing calculations before detailing supporting structure.

280 Connections between façade and support structure

4. **Requirements**
 - 4.1. **Horizontal loads:** To be transferred from façade to restraining structure without slip in compression or tension.
 - 4.2. **Differential vertical movement:** Accommodate between façade and retention structure, without connection binding.

380 Stability loads

2. **Façade gravity load (Wf):** None other than self weight
3. **Retention structure gravity loads (Ws):** Self weight of structure plus all supported dead and imposed vertical loads.
4. **Design out-of-plumb dimensions:** Façade dimensions measured immediately prior to erection of the retention structure, plus allowances for deflections due to façade foundation and thermal movements, plus calculated deflection due to movements of retention structure and its foundations.
5. **Lateral load due to offsets/ out-of-plumb (Hp):** The force necessary to stabilize the façade vertical loads against movement due to offsets and out-of-plumb.
6. **Design stability loads:** The greater of (Hp plus 1.5% of Ws) or 1.5% of (Wf + Ws)

385 Loads on connections

3. **Gravity load (Wc):** The total gravity load due to self weight of façade and applied gravity loads above connection level.
4. **Lateral load due to offsets/ out-of-plumb (Hpc):** The proportion of load Hp carried by the row of connections.

5. Wind load (Hwc): The wind force on the area of façade supported by the row of connections.
6. Maximum load on row of connections (Hr): The greater of (2.5% of Wc plus Hwc) or (Hpc + Hwc)
7. Maximum load on a connection: The proportion of Hr likely to be carried by the connection.

Products

410 Structural steel

2. Steel grades: Submit proposals.
3. Protective coating: Protect steelwork and prevent rust staining of façade and other permanent or retained works until the retention structure is dismantled.

430 Scaffolding and accessories

2. Standard: To BS EN 12811-1 and -2.
3. Protective coating for carbon steel tubes and fittings: Protect steelwork and prevent rust staining of façade and other permanent or retained works until the retention structure is dismantled.

460 Bonded anchors

3. Anchors: Stainless steel
4. Bonding agent: Injected chemical
5. Internally threaded sleeves: Required
6. Additional protection: None

480 Loadbearing timber wedges/ packs

2. Species: Straight grained hardwood.
3. Density (minimum): 640 kg/m³

Execution

600 Workmanship

4. Standard: To the designated code of practice and falsework standard.
5. Operatives skill and experience: Appropriate for the type of work.
 - 5.1. Evidence: Submit prior to commencement.

640 Enabling work

3. Scope
 - 3.1. Before erection of retention structure: Remove hazardous materials, as section C20
 - 3.1.1. Remove hazardous materials, as section C20.
 - 3.1.2. Repair façade as agreed, to facilitate connection to retention structure.
 - 3.1.3. Other requirements: None
 - 3.2. Before demolition commences: No requirements

660 Erecting retention structure

2. Existing and new services which may be affected by retention structure: Locate and mark positions. Provide temporary diversions, as necessary.
3. Existing foundations: Prevent excessive load being imposed onto foundations of façade and other structures retained in permanent works.
4. Retention structure: Erect and connect to façade, taking precautions to prevent damage. Allow for movement of structure which may occur before, during and after demolition work.
5. Connections: Tighten/ wedge to prevent slip under load.

6. **Vulnerable areas of façade:** Protect jambs of openings and other surfaces that could be knocked or rubbed.
 - 6.1. **Method of protection:** Submit proposals
7. **Damage to adjoining property or façade:** Give notice of damage arising from the execution of the works. Agree methods of repair.
8. **Compliance check:** Check retention structure for compliance with design at agreed stages during erection.
9. **Commissioning:** When retention structure and connections to façade are complete, obtain permission to proceed with demolition and give notice before commencing.

670 Unforeseen hazards

3. **General:** Give notice if unrecorded voids, flues, bonding timbers, services, etc. are discovered during erection of support systems.
4. **Action:** Submit proposals for methods for infill, making good, relocation of connections, etc. as required.

680 Bonded anchors

3. **Holes:** Drilled to manufacturer's recommended diameter and depth. Ensure holes are clean and free from dust at time of installing anchor.
4. **Permeable sleeves:** Use in conditions where otherwise the loss of bonding agent would be unacceptably high.
5. **Installation/ tightening:** To manufacturer's instructions.
6. **Testing**
 - 6.1. **Standard:** To BS 5080-1 and -2.
 - 6.2. **Preliminary tests:** Not required
 - 6.3. **Proof tests:** Test 10 of working fixings to 1.5 times the working load

710 Retention structure maintenance

4. **Visual inspection:** Inspect daily for evidence of movement, distress or vandalism.
5. **Detailed inspection and maintenance:** Carry out at same intervals as monitoring, making good to ties, wedges, connections, weatherproofing, corrosion protection, etc. as necessary.
6. **Accidental loading:** Protect structure from impact damage by vehicles, plant and site operations that system has not been designed to withstand.
7. **General:** Prevent access onto retention structure by unauthorized persons. Leave structure safe outside working hours.

720 Façade maintenance

2. **Stability:** Inspect at same intervals as monitoring. Report significant movement or deterioration of façade.
3. **Remedial work:** Submit proposals.
4. **General protection:** Protect façade from damage by site operations and from staining due to corrosion of support systems.
5. **Weather protection:** Protect exposed tops of walls

770 Maintenance certificates

3. **Submit:** Within two working days of monitoring
4. **Include**
 - 4.1. **Inspection details:** Date, time and climatic conditions.
 - 4.2. **Monitoring results:** Present in tabular form

4.3. Record of

4.3.1. Any variance from anticipated condition.

4.3.2. Any deterioration in façade condition.

4.3.3. Remedial work carried out to retention structure.

4.4. Recommendations: Action necessary to maintain condition of façade.

4.5. Confirmation of

4.5.1. Current adequacy or otherwise of retention structure. Whether visual inspections have been carried out daily.

Completion

910 Dismantling retention structure

2. Permanent connections: When complete between façade and new construction, give notice.
3. Disconnection and dismantling: Obtain permission before proceeding.

930 Completion condition survey

2. Timing: After disconnection of support systems, survey and record the state of façade.
3. Defects: Ensure that defects caused by or due to retention structure have been remedied.
4. Record: Submit for agreement.

940 Repairs to façade

4. Scope: Remove fixings and make good connection holes

Ω End of Section

C90

Alterations - repair, refurbish, refit

General

110 Descriptions

2. Location of alterations: As drawings ???
3. Details of alterations: As bill of quantities

120 Employer's property

3. Components and materials arising from alterations that are to remain the property of the employer: None
 - 3.1. Protection: Maintain until items listed above are removed by the employer or reused in the works, or until the end of the contract.
4. Special requirements: None

130 Recycled materials

3. Materials arising from alterations: May be recycled or reused elsewhere in the project, subject to compliance with the appropriate specification and in accordance with any site waste management plan.
4. Evidence of compliance: Submit full details and supporting documentation.
 - 4.1. Verification: Allow adequate time in programme for verification of compliance.

Ω End of Section

D20

Excavating and filling

Generally/the site

100 Description

7. Work in this section includes the excavation, undercut excavating and filling and all other associated miscellaneous items to the widths and depths necessary for constructing structures including excavation of any material necessary for any purpose pertinent to the construction of the Work.

105 Definitions

4. Excavation is classified as common excavation, rock excavation, or unclassified excavation in accordance with the following definitions
5. **Common Excavation:** is defined as the excavation of all materials that can be excavated, transported, and unloaded using heavy ripping equipment and wheel tractor-scrappers with pusher tractors or that can be excavated and dumped into place or loaded onto hauling equipment by excavators equipped with attachments (shovel, bucket, backhoe, dragline, or clam shell) appropriate to the material type, character, and nature of the materials.
6. **Rock Excavation:** is defined as the excavation of igneous, metamorphic or sedimentary rock or stone, boulders over one and a half (1.5) cubic metres in volume in open areas and three quarters (0.75) of a cubic metre in volume in trenches; masonry or concrete; that cannot be excavated by rippers or other mechanical methods. The word "trenches" shall mean excavations having vertical sides whose depths exceed its width, made for storm water drainage, sanitary sewer, water, and gas pipes, electric, communications, and steam conduits, and related uses.
7. **Unclassified Excavation:** is defined as the excavation of all materials encountered, including rock materials, regardless of their nature or the manner in which they are removed.

110 Site investigation

2. **Report:** See Preliminaries section A12

120 Requirements and Standards

3. The following are minimum requirements and shall govern except that all Civil code and statutory legislation shall govern when their requirements are in excess hereof.
4. **Standard:** SM EN 16907-3:2018
5. **Environmental requirements:** Determine environmental effects associated with proposed work and safeguard those concerns as regulated by law and local governing agencies by reasonable and practical methods.

130 Scope

2. All rock excavation will have to be performed using mechanical means such as hoe-ramming, wedging, drilling or splitting, to be approved by the Perit.
3. All work shall be performed in accordance with the civil code and all pertinent statutory legislation.
4. Rock will be excavated by mechanical means only, blasting will not be allowed.
5. The Contractor shall examine the site and may make his own subsurface explorations. The Ground Investigation Report as per clause 110 is made available for information only. The Contractor shall assume all responsibility for any interpretations or for reviewing the available information.
6. This Section includes furnishing all mechanical equipment and protection required to complete the work indicated on the Drawings and as specified herein.

7. The Contractor shall be responsible for any and all damage and/or injury from the excavation activities. It shall be the Contractor's responsibility to determine the method of operation to ensure desired results and integrity of completed work. All damage caused by the Contractor's excavation operations shall be repaired to the full satisfaction of the Employer at no additional cost to the Employer.

135 Submittal

3. The Contractor shall provide an Excavation Plan (Excavation Method Statement) prior to any excavation to the Perit and the Building and Construction Agency (BCA) for review.

145 Variations in ground water level

4. **Give notice:** If levels encountered are significantly different from levels in the site investigation report or previously measured.

150 Existing services, features and structures

6. **Services:** See section A12 for locations.
7. **Site features to be retained:** See section A12 for details.
8. **Structures:** See section A34 for details of protection.

155 Excavation limits

6. Excavations shall comply with Occupational health and safety (OHS) legislation. All excavations shall be completed and maintained in a safe and stable condition throughout the total construction phase. Structure and trench excavations shall be completed to the specified elevations and to the length and width required to safely install, adjust, and remove any forms, bracing, or supports necessary for the installation of the work. Excavations outside the lines and limits shown on the drawings or specified herein required to meet safety requirements shall be the responsibility of the contractor in constructing and maintaining a safe and stable excavation.

Clearance/excavating

160 Preperation

3. Verify site conditions and note subsurface conditions affecting work of this section.
4. Identify required lines, levels, and elevations that will determine extent of proposed excavations.

168 Site clearance

2. **Timing:** Before topsoil stripping, if any.
3. **General:** Clear site of rubbish, debris and vegetation. Do not compact topsoil.

230 Unclassified excavation

3. Upon completion of the stripping operations, and after all excavation of the site has been completed to the lines and grades shown on the drawings, the exposed subgrade in cut areas should be compacted as specified herein for areas to receive fill. Any areas which deflect, rut or pump excessively during the compaction or fail to "tighten up" after successive passes should be undercut to suitable soils and replaced with compacted fill.
4. Rock in the bottom of roadway cuts shall be excavated to a depth of thirty (30) centimetres below the roadbed and ditches. Rock in building pad areas shall be excavated to a depth of thirty (30) centimetres below finished grade or as indicated on the drawings.
5. The contractor shall provide all sheeting, shoring, underpinning and bracing required to hold the sides of the excavation and for the protection of all adjacent structures.

235 Rock excavation

5. Rock Excavation methods by the use of drilling, splitting, wedging or other approved methods not involving the use of explosives shall be utilized. The method selected by the Contractor shall allow excavation to the slope line(s) and depth(s) as shown on the drawings and shall not affect in any way the material or structures outside the excavation line or grade.
6. Cut rock to form level bearing at bottom of footing and trench excavations. Remove shaled layers to provide sound and unshattered base for footings or foundations. Contractor shall consider reuse of excavated materials on site in accordance with clause 700. If material cannot be utilized on site, then Contractor shall dispose of material offsite at no additional cost to the Employer.
7. Remove rock to allow for construction and/or installation of the site and building improvements as indicated on the Drawings. Remove loose or shattered rock, overhanging ledges and boulders, which might dislodge.

236 Rock cut face excavation

3. The slope of the soil above the top of any permanently exposed rock cut face shall be no steeper than 4(H):1(V) unless otherwise noted on the Drawings. Slope of the rock face shall be subject to a field review by the Perit.
4. Benches of at least three (3) metres in width at a maximum of six (6) metres in elevation intervals or as noted on the Drawings. The benches are to provide rock traps and divert water from the rock face.

237 Rock trap

2. Locate rock traps at the base of permanently exposed rock slopes and construct as indicated by the Perit unless otherwise noted on the Drawings.

244 Excavations adjacent to existing foundations

4. Prior to commencing excavation
 - 4.1. Excavate trial pits adjacent to existing foundations to determine extent and formation levels.
 - 4.2. Allow for inspection of trial pits.
 - 4.3. Allow time for amendment of details if required.
 - 4.3.1. Time period: 5 working days
5. Backfill material to new excavation: As clause 248

248 Backfill to excavations lower than foundation formation level

4. Critical level
 - 4.1. Distance between near faces of foundation and lower excavation less than 1 m: 150 mm above foundation formation level
 - 4.2. Otherwise: 150 mm above level at which line defined in clause 240 cuts near face of lower excavation
5. Backfill material
 - 5.1. Below critical level: Lean mix concrete
 - 5.2. Above critical level: Hardcore filling as clause 710

250 Permissible deviations from formation levels

4. Beneath mass concrete foundations: ± 25 mm.
5. Beneath ground bearing slabs and r.c. foundations: ± 15 mm.
6. Embankments and cuttings: ± 50 mm.
7. Ground abutting external walls: ± 50 mm, but such as to ensure that finished level is not less than 150 mm below dpc.

255 Accuracy – linear dimensions

3. Permissible deviations from linear dimensions generally: ± 5 mm.

260 Inspecting formations

3. Give notice: Make advance arrangements for inspection of formations for foundations and filling formations.
 - 3.1. Notice (minimum): 4 days
4. Preparation: Just before inspection remove the last 150 mm of excavation. Trim to required profiles and levels.
 - 4.1. Loose material: Remove
5. Seal: Within 4 hours of inspection, seal formations with blinding concrete.

270 Foundations generally

2. Give notice if
 - 2.1. A natural bearing formation of undisturbed subsoil is not obtained at the depth shown on the drawings.
 - 2.2. The formation contains soft or hard spots or highly variable material.

310 Unstable ground

2. Generally: Ensure that the excavation remains stable at all times.
3. Give notice: Without delay if any newly excavated faces are too unstable to allow earthwork support to be inserted.
4. Take action: If instability is likely to affect adjacent structures or roadways, take appropriate emergency action.

320 Recorded features

5. Recorded foundations, beds, drains, manholes, etc.: Break out and seal drain ends
6. Contaminated earth: Remove and disinfect as required by Local Authority.

330 Unrecorded features

3. Give notice: If unrecorded foundations, beds, voids, basements, filling, tanks, pipes, cables, drains, manholes, watercourses, ditches, etc. not shown on the drawings are encountered.

335 New foundations crossing old foundations or walls

2. Break out: The old foundation/ wall where it crosses the new foundation/ wall:
 - 2.1. Length of breaking out: Width of the new foundation/ wall plus 50 mm on either side of new foundation.
 - 2.2. Depth of breaking out: Full depth of existing foundation/ wall
3. Disturbed/ softened soil: When the formation for the old foundation/ wall is deeper than the formation of the new foundation.
 - 3.1. Excavate: Soil that has been disturbed and/ or softened on either side of the old wall/ foundation, and for 100 mm into undisturbed ground on either side.
4. Step up: The formation for the new foundation as necessary on either side of the old foundation/ wall until the formation is at its design level.
 - 4.1. Size of steps: Minimum distance between steps 600 mm and maximum height of step 200 mm
5. Backfilling beneath design formation level: Fill with concrete as foundation is cast

337 Old foundations or walls beneath new ground supported slab

4. Break out: The old foundation/ wall to a depth below the slab formation level of at least 300 mm.
 - 4.1. **Excavate:** Soil that has softened on either side of the old wall/ foundation.
5. **Backfill:** Obtain instructions if depth of fill will be greater than 600 mm, otherwise backfill with compacted hardcore.

360 Excess excavation

3. Excavation taken wider than required
 - 3.1. **Backfill:** As instructed
4. Excavation taken deeper than required
 - 4.1. **Backfill:** Under foundations: Concrete grade C35

Disposal of materials

443 Use of excavated material

2. Suitable material from the specified excavations may be used in the construction of required earthfill or rockfill. The suitability of material for specific purposes is determined by the Perit.

444 Disposal of waste materials

4. All surplus or unsuitable excavated materials are designated as waste and shall be disposed of by the contractor at sites of his own choosing away from the site of the work.
5. The disposal shall be in an environmentally acceptable manner that does not violate local rules and regulations.

450 Water

8. **Generally:** Keep all excavations free from water until:
 - 8.1. Formations are covered.
 - 8.2. Below ground constructions are completed.
 - 8.3. Basement structures and retaining walls are able to resist leakage, water pressure and flotation.
9. **Drainage:** Form surfaces of excavations and fill to provide adequate falls.
10. **Removal of water:** Provide temporary drains, sumps and pumping as necessary. Do not pollute watercourses with silt laden water.

454 Ground water level, springs or running water

3. **Give notice:** If it is considered that the excavations are below the water table.
4. **Springs/ Running water:** Give notice immediately if encountered.

457 Pumping

4. **General:** Do not disturb excavated faces or stability of adjacent ground or structures.
5. **Pumped water:** Discharge without flooding the site or adjoining property.
6. **Sumps:** Construct clear of excavations. Fill on completion.
 - 6.1. **Locations:** Contractor's choice

460 Permanent drainage system

2. **Disposal of water from the excavations through system:** Not permitted

Filling

500 Proposed fill materials

4. **Details:** Submit full details of proposed fill materials to demonstrate compliance with specification, including:
 - 4.1. Type and source of imported fill.
 - 4.2. Proposals for processing and reuse of material excavated on site.
 - 4.3. Test reports as required elsewhere.
5. **Timing:** At least 21 days before starting filling

510 Hazardous, aggressive or unstable materials

4. **General:** Do not use fill materials which would, either in themselves or in combination with other materials or ground water, give rise to a health hazard, damage to building structures or instability in the filling, including material that is:
 - 4.1. Frozen or containing ice.
 - 4.2. Organic.
 - 4.3. Contaminated or noxious.
 - 4.4. Susceptible to spontaneous combustion.
 - 4.5. Likely to erode or decay and cause voids.
 - 4.6. With excessive moisture content, slurry, mud or from marshes or bogs.
 - 4.7. Clay of liquid limit exceeding 80 and/or plasticity index exceeding 55.
 - 4.8. Unacceptable, class U2 as defined in the 'Specification for highway works', clause 601.

530 Placing fill

3. **Surfaces of excavations and areas to be filled:** Free from loose soil, topsoil, organic material, rubbish and standing water.
4. **Freezing conditions:** Do not place fill on frozen surfaces. Remove material affected by frost. Replace and recompact if not damaged after thawing.
5. **Adjacent structures, membranes and buried services**
 - 5.1. Do not overload, destabilise or damage.
 - 5.2. Submit proposals for temporary support necessary to ensure stability during filling.
 - 5.3. Allow 14 days (minimum) before backfilling against in situ concrete structures.
6. **Layers:** Place so that only one type of material occurs in each layer.
7. **Earthmoving equipment:** Vary route to avoid rutting.

535 Compaction generally

4. **General:** Compact fill not specified to be left loose as soon as possible after placing.
5. **After compaction:** Surface of each layer must be well closed, showing no movement under compaction plant, and without cracks, holes, ridges, loose material and the like.
6. **Defective areas:** Remove and recompact to full thickness of layer using new material.

540 Benching in fill

3. **Adjacent areas:** If, during filling the difference in level between adjacent areas of filling exceeds 600 mm, cut into edge of higher filling to form benches 600 mm minimum width and height equivalent to depth of a layer of compacted filling.
4. **New filling:** Spread and compact to ensure maximum continuity with previous filling.

700 Backfilling around foundations

2. Under oversite concrete and pavings: Hardcore as clause 710.
3. Under grassed or soil areas: Material excavated from the trench, laid and compacted in 300 mm maximum layers.

710 Hardcore filling

5. Fill: Granular material, free from excessive dust, well graded, all pieces less than 75 mm in any direction:
 - 5.1. Test requirements
 - 5.1.1. Minimum 10% fines value tested in a soaked condition to BS 812-111 Not required.
 - 5.1.2. Impact value SZ tested to BS EN 1097-2 Not required.
6. Material
 - 6.1. Permitted materials in any one layer
 - 6.1.1. Crushed rock (other than argillaceous rock) or quarry waste with not more binding material than is required to help hold the stone together.
 - 6.1.2. Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
 - 6.1.3. Crushed non-expansive slag.
 - 6.1.4. Gravel or hoggin with not more clay content than is required to bind the material together, and with no large lumps of clay.
 - 6.1.5. Well-burned non-plastic colliery shale.
 - 6.1.6. Natural gravel.
 - 6.1.7. Natural sand.
7. Filling: Spread and level in 150 mm maximum layers. Thoroughly compact each layer.

715 Venting hardcore layer

3. Fill: Clean granular material, well graded, passing a 75 mm BS sieve but retained on a 20 mm BS sieve. In each layer only one of the following:
 - 3.1. Crushed hard rock.
 - 3.2. Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
 - 3.3. Gravel.
4. Filling: Spread and level in 150 mm maximum layers. Thoroughly compact each layer whilst maintaining enough voids to allow efficient venting.

730 Blinding

2. Surfaces to receive sheet overlays or concrete:
3. Blind with
 - 3.1. Concrete where shown on drawings; or
4. Sand, fine gravel, or other approved fine material applied to fill interstices. Moisten as necessary before final rolling to provide a flat, closed, smooth surface.
5. Sand for blinding: To BS EN 12620, grade 0/4 or 0/2 (MP).
6. Permissible deviations on surface level: +0/-25 mm

Bioremediation - Not Used

'specification for highway works: earthworks specification' appendices - Not Used

Ω End of Section

E05

In situ concrete construction generally

To be read with preliminaries/ general conditions.

215 Contractor's structural detailing of reinforcement

3. Responsibility: Prepare bar bending schedules for all reinforced concrete elements.
4. Requirement: Complete the detailing/ scheduling of reinforcement in accordance with the designated code of practice.
5. Design information
 - 5.1. Designed reinforcement: As drawings SL(2-)201 to 213, SL(2-)301 to 310
6. Reinforcement
 - 6.1. Order of priority when clashes occur: Continuity of reinforced masonry wall steel followed by primary beam steel, followed by secondary beam steel
 - 6.2. Other detailing requirements: None

223 Structural drawings and schedules

2. Standards
 - 2.1. Drawings: To 'Standard method of detailing structural concrete' published by the Institution of Structural Engineers.
 - 2.2. Reinforcement schedules: To BS 8666.

225 Temperature records

2. Requirement: Throughout period of concrete construction record:
 - 2.1. Daily: Maximum and minimum atmospheric shade temperatures
 - 2.2. Under adverse temperature conditions: Temperature at commencement and end of placing.
3. Equipment: Contractor's choice
 - 3.1. Location: In the shade, close to the structure.

235 Openings, inserts and fixings

3. Requirement: Collate all information.
4. Submit: Details where openings, inserts and fixings can only be accommodated by adjustments to reinforcement.
5. Locate reinforcement: To ensure specified minimum cover at openings and inserts and to be clear of fixing positions.

290 Accuracy of construction

2. Setting out: To BS 5964-1.
3. Geometrical tolerances: To Section 10 of the 'National Structural Concrete Specification for Building Construction'
 - 3.1. Conflicts: Notwithstanding tolerances specified elsewhere, do not exceed requirements for compliance with the designated code of practice.
 - 3.2. Substitution of alternative requirements: None

300 Levels of structural concrete floors

2. Tolerances (maximum)
 - 2.1. Level of floor: As Preliminaries section A33
 - 2.2. Steps in floor level: Not applicable

310 Surface regularity of concrete floors to BS 8204 - general

- 3. **Standard:** To BS 8204-1 or -2.
- 4. **Measurement:** From underside of a 2 m straightedge (between points of contact) placed anywhere on surface and using a slip gauge.

315 Surface regularity of concrete floors to BS 8204 - tolerance class

- 6. **Description:** SR2
- 7. **Location:** All roof slabs surfaces
- 8. **Abrupt changes:** Not permitted

410 In situ concrete construction - supervision/ checking

- 2. **Standard:** To BS EN 13670, Execution Class 2

430 Surface cracking

- 4. **Description:** OF WATERTIGHT CONCRETE CONSTRUCTION
- 5. **Method of measurement:** Templates or feeler gauges
- 6. **Maximum crack width:** 0.2 mm
- 7. **Action:** Should cracks occur that are wider than the maximum crack width:
 - 7.1. **Survey:** Frequency and extent of such cracks and investigate cause.
 - 7.2. **Report:** Findings together with recommendations for rectification.

Ω End of Section

E10

Mixing/casting/curing in situ concrete

Concrete

101 Specification

2. Concrete generally: To BS 8500-2.
3. Exchange of information: Provide concrete producer with information required by BS 8500-1, clauses 4 and 5.

105A Designated concrete for blinding and filling

3. Description: FOR BLINDING AND FILLING
4. Designation: RC20/25
5. Fibres: Not required
6. Aggregates
 - 6.1. Size (maximum): 20 mm
 - 6.2. Coarse recycled aggregates: Not permitted
 - 6.3. Additional aggregate requirements: None
7. Special requirements for cement/ combinations: None
8. Consistence class: Contractor's choice
9. Chloride class: Normal
10. Admixtures: Concrete producer's choice
11. Additional mix requirements: None

105B Designated concrete for foundations

7. Description: FOR FOUNDATIONS
8. Designation: RC28/35
9. Fibres: Not required
10. Aggregates
 - 10.1. Size (maximum): 20 mm
 - 10.2. Coarse recycled aggregates: Not permitted
 - 10.3. Additional aggregate requirements: Use of imported aggregate should be considered to achieve the stipulated strength class and properties.
11. Special requirements for cement/ combinations: None
12. Consistence class: Contractor's choice
13. Chloride class: Normal
14. Admixtures: Integral waterproofing admixture and Contractor's choice – subject to the approval of the Perit.
15. Additional mix requirements: Identity testing as clause 508

105C Designated concrete for reinforced masonry walls infill

3. Description: FOR REINFORCED MASONRY WALLS INFILL
4. Designation: RC25/30
5. Fibres: Not required
6. Aggregates
 - 6.1. Size (maximum): 20 mm

- 6.2. Coarse recycled aggregates: Not permitted
- 6.3. Additional aggregate requirements: None
- 7. Special requirements for cement/ combinations: None
- 8. Consistence class: Contractor's choice
- 9. Chloride class: Normal
- 10. Admixtures: Concrete producer's choice
- 11. Additional mix requirements: Identity testing as clause 508

105D Designated concrete for internal reinforced beams and slabs

- 2. Description: FOR INTERNAL REINFORCED BEAMS AND SLABS
- 3. Designation: RC32/40
- 4. Fibres: Not required
- 5. Aggregates
 - 5.1. Size (maximum): 20 mm
 - 5.2. Coarse recycled aggregates: Not permitted
 - 5.3. Additional aggregate requirements: Use of imported aggregate should be considered to achieve the stipulated strength class and properties.
- 6. Special requirements for cement/ combinations: None
- 7. Consistence class: Contractor's choice
- 8. Chloride class: Normal
- 9. Admixtures: Concrete producer's choice
- 10. Additional mix requirements: Identity testing as clause 508

105E Designated concrete for external reinforced beams and slabs

- 4. Description: FOR EXTERNAL REINFORCED BEAMS AND SLABS
- 5. Designation: RC32/40
- 6. Fibres: Not required
- 7. Aggregates
 - 7.1. Size (maximum): 20 mm
 - 7.2. Coarse recycled aggregates: Not permitted
 - 7.3. Additional aggregate requirements: Use of imported aggregate should be considered to achieve the stipulated strength class and properties.
- 8. Special requirements for cement/ combinations: None
- 9. Consistence class: Contractor's choice
- 10. Chloride class: Normal
- 11. Admixtures: Integral waterproofing admixture and Contractor's choice – subject to the approval of the Perit.
- 12. Additional mix requirements: Identity testing as clause 508

125 Substitution of standardized prescribed concrete for designated concrete

- 2. General: Conform to BS 8500-2, clause 9.
- 3. Substitution: In accordance with BS 8500-1, Table A.14.
 - 3.1. Proposals: Submit for each substitution, stating reasons.
- 4. Site mixing: Permitted as clause 218

Materials, batching and mixing

215 Ready-mixed concrete

2. Production plant: Currently certified by a body accredited by UKAS to BS EN ISO/IEC 17065 for product conformity certification of ready-mixed concrete .
3. Source of ready-mixed concrete: Obtain from one source if possible . Otherwise, submit proposals .
 - 3.1. Name and address of depot: Submit before any concrete is delivered .
 - 3.2. Delivery notes: Retain for inspection .
4. Declarations of nonconformity from concrete producer: Notify immediately .

218 Site mixed concrete

3. Batching by mass
 - 3.1. Restrictions: Maximum pour size 3 m³
 - 3.2. Accuracy of measuring devices: To BS EN 206, clause 9.6.2.2.
 - 3.2.1. Tolerances for quantity of constituent material: To BS EN 206, Table 27.
4. Batching by volume
 - 4.1. Restrictions: Maximum pour size 3 m³
5. Mixing: To BS 8000-2.1, subsections 2, 3 and 4.

221 Information about proposed concretes

5. Submit when requested
 - 5.1. Details listed in BS 8500-1, clause 5.2.
 - 5.2. Additional information: Data concerning the anticipated rate of strength gain

225 Changes to specification

3. Changes to specification of fresh concrete (outside concrete producer's responsibility): Perform identity test for compressive strength on each affected batch

230 Interruption of supply during concreting

2. Elements without joints: Where elements are detailed to be cast in a single pour without joints, make prior arrangements for a back-up supply of concrete.
3. Elsewhere
 - 3.1. Preparation: Manage pour to have a full face, and have materials available to form an emergency construction joint while concrete can still be worked.
 - 3.2. Before pour is completed: Submit location and details of joint, make proposals for joint preparation.

415 Admixtures

2. Calcium chloride and admixtures containing calcium chloride: Do not use .

490 Properties of fresh concrete

2. Adjustments to suit construction process: Determine with concrete producer . Maintain conformity to the specification .

Project testing/ certification

505 Project testing of concrete - general

3. Testing: To BS EN 206, Annex B To BS EN 206, Annex B

- 3.1. **Nonconformity:** Obtain instructions immediately.
- 4. **Recording:** Maintain complete correlated records including:
 - 4.1. Concrete designation.
 - 4.2. Sampling, site tests, and identification numbers of specimens tested in the laboratory.
 - 4.3. Location of the parts of the structure represented by each sample.
 - 4.4. Location in the structure of the batch from which each sample is taken.

508 Regular project testing of concrete

- 3. **Tests:** Early age compressive strength testing at 7 and 28 days
- 4. **Consistence testing period:** 1 h
- 5. **Sampling**
 - 5.1. **Point:** At point of placing
 - 5.2. **Rate:** 4 samples from each batch for early age compressive strength testing
- 6. **Other requirements:** Cubes for early age strength testing to be stored under same conditions as concrete in members

520 Testing laboratory

- 2. **Laboratory:** Accredited by MCAA or other national equivalent.
 - 2.1. **Name and UKAS reference number:** Submit well in advance of making trial mixes or concrete for use in the works.

530 Tests results

- 2. **Submission of reports:** Within one day of completion of each test.
 - 2.1. **Number of copies:** Three
- 3. **Reports on site:** A complete set, available for inspection.

550 Broken cubes from failed strength tests

- 3. **Nonconformity:** Keep separately the pieces of each cube which fail to meet the conformity requirements for individual results.
- 4. **Period for keeping cubes:** Obtain instructions.

Placing/ compacting/ curing and protecting

630 Premature water loss

- 3. **Requirement:** Prevent water loss from concrete laid on absorbent substrates .
 - 3.1. **Underlay:** Select from:
 - 3.1.1. Polyethylene sheet: 250 micrometres thick .
 - 3.1.2. Building paper: To BS 1521, grade B1F .
 - 3.2. **Installation:** Lap edges 150 mm .

640 Construction joints

- 2. **Location of joints:** Submit proposals when not shown on drawings
- 3. **Preparation of joint surfaces:** Submit proposals

648 Adverse temperature conditions

- 1. **Requirement:** Submit proposals for protecting concrete when predicted ambient temperatures indicate risk of concrete freezing or overheating.

650 Surfaces to receive concrete

1. **Cleanliness of surfaces immediately before placing concrete:** Clean with no debris, tying wire clippings, fastenings or free water .

660 Inspection of surfaces

1. **Notice:** Give notice to allow inspections of reinforcement and surfaces before each pour of concrete.
 - 1.1. **Period of notice:** Obtain instructions.
2. **Timing of inspections:** First inspection when reinforcement fixing is close to completion, second inspection when reinforcement and formwork are ready for concreting.

670 Transporting

1. **General:** Avoid contamination, segregation, loss of ingredients, excessive evaporation and loss of workability . Protect from heavy rain .
2. **Entrained air:** Anticipate effects of transport and placing methods in order to achieve specified air content .

680 Placing

1. **Records:** Maintain for time, date and location of all pours.
2. **Timing:** Place as soon as practicable after mixing and while sufficiently plastic for full compaction.
3. **Temperature limitations for concrete:** 30°C (maximum) and 5°C (minimum), unless otherwise specified. Do not place against frozen or frost covered surfaces.
4. **Continuity of pours:** Place in final position in one continuous operation up to construction joints. Avoid formation of cold joints.
5. **Discharging concrete:** Prevent uneven dispersal, segregation or loss of ingredients or any adverse effect on the formwork or formed finishes.
6. **Thickness of layers:** To suit methods of compaction and achieve efficient amalgamation during compaction.
7. **Poker vibrators:** Do not use to make concrete flow horizontally into position, except where necessary to achieve full compaction under void formers and cast-in accessories and at vertical joints.

690 Compacting

1. **General:** Fully compact concrete to full depth to remove entrapped air. Continue until air bubbles cease to appear on the top surface.
 - 1.1. **Areas for particular attention:** Around reinforcement, under void formers, cast-in accessories, into corners of formwork and at joints.
2. **Consecutive batches of concrete:** Amalgamate without damaging adjacent partly hardened concrete.
3. **Methods of compaction:** To suit consistence class and use of concrete.

720 Vibrators

1. **General:** Maintain sufficient numbers and types of vibrator to suit pouring rate, consistency and location of concrete .
2. **External vibrators:** Obtain approval for use .

730 Plastic settlement

1. **Settlement cracking:** Inspect fresh concrete closely and continuously wherever cracking is likely to occur, including the top of deep sections and at significant changes in the depth of concrete sections .

- 1.1. **Timing:** During the first few hours after placing and whilst concrete is still capable of being fluidized by the vibrator .
2. **Removal of cracks:** Revibrate concrete.

810 Curing generally

1. **Requirement:** Keep surface layers of concrete moist throughout curing period, including perimeters and abutments, by either restricting evaporation or continuously wetting surfaces of concrete.
 - 1.1. **Surfaces covered by formwork:** Retain formwork in position and, where necessary to satisfy curing period, cover surfaces immediately after striking.
 - 1.2. **Top surfaces:** Cover immediately after placing and compacting. If covering is removed for finishing operations, replace it immediately afterwards.
2. **Surface temperature:** Maintain above 5°C throughout the specified curing period or four days, whichever is longer.
3. **Records:** Maintain details of location and timing of casting of individual batches, removal of formwork and removal of coverings. Keep records on site, available for inspection.

811 Coverings for curing

1. **Sheet coverings:** Suitable impervious material .
2. **Curing compounds:** Selection criteria:
 - 2.1. **Curing efficiency:** Not less than 75% or for surfaces exposed to abrasion 90% .
 - 2.2. **Colouring:** Fugitive dye .
 - 2.3. **Application to concrete exposed in the finished work:** Readily removable without disfiguring the surface .
 - 2.4. **Application to concrete to receive bonded construction/ finish:** No impediment to subsequent bonding .
3. **Interim covering to top surfaces of concrete:** Until surfaces are in a suitable state to receive coverings in direct contact, cover with impervious sheeting held clear of the surface and sealed against draughts at perimeters and junctions .

812 Preventing early age thermal cracking

1. **Deep lifts or large volume pours:** Submit proposals for curing to prevent early age thermal cracking, taking account of:
 - 1.1. Temperature differentials across sections .
 - 1.2. Coefficient of thermal expansion of the concrete .
 - 1.3. Strain capacity of the concrete mix (aggregate dependent) .
 - 1.4. Restraint .

815 Additional curing requirement - water curing

1. **Commencement of water curing:** As soon as practicable after placing and compacting concrete .
 - 1.1. **Surfaces covered by formwork:** Expose to water curing as soon as practicable .
 - 1.2. **Top surfaces:** Cover immediately with impermeable sheeting to prevent evaporation before commencement of water curing .
2. **Water curing:** Wet surfaces continuously throughout curing period .
 - 2.1. **Select methods from**
 - 2.1.1. Mist spray .
 - 2.1.2. Wet hessian covered with impermeable sheeting .

820 Curing periods

1. **Description:** FOR ALL CONCRETE
2. **General:** Curing periods are in days (minimum) .
 - 2.1. **Definition of 't':** The average surface temperature of concrete in degrees Celsius during the curing period.
3. Curing periods for concrete made using CEM1 strength class 42.5 or 52.5, or SRPC class 42.5
 - 3.1. Drying winds or dry, sunny weather (relative humidity < 50%): $140/(t+10)$
 - 3.2. Intermediate conditions (relative humidity between 50 and 80%): $100/(t+10)$
 - 3.3. Damp weather, protected from sun and wind (relative humidity > 80%): $100/(t+10)$
4. Curing periods for concrete made using cements listed in BS8500-1, Table A.6 except for those listed above and for supersulfated cement
 - 4.1. Drying winds or dry, sunny weather (relative humidity < 50%): $180/(t+10)$
 - 4.2. Intermediate conditions (relative humidity between 50 and 80%): $140/(t+10)$
 - 4.3. Damp weather, protected from sun and wind (relative humidity > 80%): $100/(t+10)$
5. **Curing periods:** For concretes using admixtures or other types of cements/ combinations: Submit proposals.
6. **Other requirements:** For concretes using admixtures or other types of cements/ combinations: Submit proposals

840 Protection

1. Prevent damage to concrete, including
 - 1.1. **Surfaces generally:** From rain, indentation and other physical damage .
 - 1.2. **Surfaces to exposed visual concrete:** From dirt, staining, rust marks and other disfiguration .
 - 1.3. **Immature concrete:** From thermal shock, physical shock, overloading, movement and vibration .
 - 1.4. **In cold weather:** From entrapment and freezing expansion of water in pockets, etc .

Ω End of Section

E20 Formwork for in situ concrete

Generally/ preparation

110 Loadings

1. Requirement: Design and construct formwork to withstand the worst combination of the following:
 - 1.1. Total weight of formwork, reinforcement and concrete.
 - 1.2. Construction loads including dynamic effects of placing, compacting and construction traffic.
 - 1.3. Wind and snow loads.

120 Formwork details

1. Provide the following: Construction joints - positions and types, finish

132 Propping

1. General: Prevent deflection and damage to the structure. Carry down props to bearings strong enough to provide adequate support throughout concreting operations.
2. Method statement: Submit proposals for prop bearings and sequence of propping/ repropping and backpropping.
 - 2.1. Timing of submission: To be agreed between the permanent works designer and the temporary works coordinator

160 Cambers

1. Application of specified upward cambers: To the concrete immediately before formwork is struck.
 - 1.1. Formwork: Allow for deflection under weight of fresh concrete.
 - 1.2. Top surfaces of concrete: Camber to maintain the required structural depths and profiles.
2. Checks after striking of formwork and removal of props: Levels to determine extent of any residual camber. Submit results.
3. Upward cambers: Construct forms to achieve the following:
 - 3.1. Slabs with spans greater than 3 m: 0.1% of span measured at centre..

170 Work below ground

1. Description: - FOUNDATIONS
- SLAB EDGES
2. Casting vertical faces against faces of excavation: Not permitted

Construction

310 Accuracy

1. General requirement for formwork: Accurately and robustly constructed to produce finished concrete in the required positions and to the required dimensions.
2. Formed surfaces: Free from twist and bow (other than any required cambers).
3. Intersections, lines and angles: Square, plumb and true.

320 Joints in forms

1. Requirements including joints in form linings and between forms and completed work
 - 1.1. Prevent loss of grout, using seals where necessary.
 - 1.2. Prevent formation of steps. Secure formwork tight against adjacent concrete.

330 Inserts, holes and chases

1. Positions and details
 - 1.1. Dimensioned on drawings provided on behalf of the Employer: Do not change without consent.
 - 1.2. Undimensioned or from other sources: Submit proposals.
2. Positioning relative to reinforcement: Give notice of any conflicts well in advance of placing concrete.
3. Method of forming: Fix inserts or box out as required. Do not cut hardened concrete without approval.

340 Kickers

1. Method statement: Submit proposals including means of achieving quality of concrete consistent with that specified for the column or wall.
 - 1.1. Kicker height: 75 mm

350 Form ties

1. Metal associated with form ties/ devices: Prohibited within cover to reinforcement. Compatible with reinforcement metal.

410 Expanded steel mesh formwork lining

1. Manufacturer: Submit proposals
 - 1.1. Product reference:

470 Release agents

1. Use: All formwork
2. General: Achieve a clean release of forms without disfiguring the concrete surface.
3. Product types: Compatible with formwork materials, specified formed finishes and subsequent applied finishes. Use the same product throughout the entire area of any one finish.
4. Protection: Prevent contact with reinforcement, hardened concrete, other materials not part of the form face, and permanent forms.

480 Surface retarders

1. Use: Obtain approval.
2. Reinforcement: Prevent contact with retarder.

Striking

510 Striking formwork

1. Timing: Prevent any disturbance, damage or overloading of the permanent structure.

521 Minimum period for retaining formwork/ temporary supports in position

1. Concrete strength at time of formwork removal (minimum): 75% of 28 day strength
2. Assumptions: Maturity of permanent supports and adjacent elements of structure is at least equal to element under consideration
 - 2.1. Before removing formwork: Submit proposals if assumptions will not be realised.
3. Method to be used in assessing early age strength of concrete: Submit proposals

Formed finishes

615 Finish to receive asphalt tanking

1. Finish: Even and suitable to receive asphalt.
2. Permissible deviation of surfaces
 - 2.1. Sudden irregularities (maximum): 3 mm.
 - 2.2. Gradual irregularities (maximum): 3 mm, when measured from underside of a 1 m straightedge, placed anywhere on surface.
3. Surface blemishes
 - 3.1. Permitted: Blowholes less than 10 mm in diameter.
 - 3.2. Not permitted: Voids, honeycombing, segregation and other large defects.
4. Projecting fins: Remove.
5. Formwork tie holes: Filled with mortar.

620 Plain finish

1. Location: All surfaces
2. Finish: Even and dense. Arrange formwork panels in a regular pattern as a feature of the surface.
3. Permissible deviation of surfaces
 - 3.1. Sudden irregularities (maximum): 3 mm.
 - 3.2. Gradual irregularities (maximum): 3 mm, when measured from the underside of a 1 m straightedge, placed anywhere on surface.
4. Variations in colour
 - 4.1. Permitted: Those caused by impermeable formwork linings.
 - 4.2. Not permitted: Those caused by contamination or grout leakage.
5. Surface blemishes
 - 5.1. Permitted: Blowholes less than 10 mm in diameter and at an agreed frequency.
 - 5.2. Not permitted: Voids, honeycombing, segregation and other large defects.
6. Formwork tie holes: In a regular pattern and filled with matching mortar.

Ω End of Section

E30 Reinforcement for in situ concrete

Reinforcement

110 Quality assurance of reinforcement

1. Standards
 - 1.1. Reinforcement: To BS 4449, BS 4482, BS 4483 or BS 6744.
 - 1.2. Cutting and bending: To BS 8666.
2. Source of reinforcement: Companies holding valid certificates of approval for product conformity issued by the UK Certification Authority for Reinforcing Steels (CARES).

150 Ribbed bar reinforcement

1. Standard: To BS 4449.
 - 1.1. Strength grade: B500B

210 Standard fabric reinforcement

1. Standard: To BS 4483.
2. Strength grade: B500C

Workmanship

310 Cutting and bending reinforcement

1. General: To schedules and to BS 8666.
2. Bending on site, including minor adjustments: Obtain instructions

320 Protection of reinforcement

1. Dropping from height, mechanical damage and shock loading: Prevent.
2. Cleanliness of reinforcement at time of pouring concrete: Free from corrosive pitting, loose mill scale, loose rust and contaminants which may adversely affect the reinforcement, concrete, or bond between the two.

410 Laps or splices

1. Details not shown on drawings: Obtain instructions.

425 Laps not detailed on drawings

1. Laps in bar reinforcement (minimum): Generally 40 x bar diameter, Bars but for Bars at top of beams 60 x bar diameter
2. Laps in fabric reinforcement (minimum): 40 x bar diameter
 - 2.1. Laps at corners: Avoid four layer build-up.

451 Fixing reinforcement

1. Standard: To BS 7973-1 and -2.
2. Installation: In addition to any spacers and chairs shown on drawings or schedules, provide adequate support, tie securely and maintain the specified cover.
3. Tying
 - 3.1. Wire type: 16 gauge black annealed. Use stainless steel wire for stainless steel reinforcement.
4. Ends of tying wire: Prevent intrusion into the concrete cover. Remove loose ends.

5. **Compatibility of metals:** Prevent contact between ordinary carbon steel and stainless or galvanized reinforcement.

470 Tolerances on cover

1. **Tolerance (maximum):** 5 mm
2. **Checking specified cover dimensions:** Before concreting check that cover dimensions will be achieved.

480 Nominal cover to reinforcement

1. **Nominal cover:** Generally 35 mm but 50mm for foundations

Ω End of Section

E40

Designed joints in in situ concrete

To be read with preliminaries/ general conditions.

120 Construction/ movement joints generally

1. Accuracy: Position and form joints accurately, straight, well-aligned and truly vertical, horizontal or parallel with setting out lines of the building.
2. Modifications to joint design or location: Submit proposals.
3. Placing concrete to form movement joints
 - 3.1. Maintain effectiveness of joints. Prevent concrete entering joints, penetrating or impregnating compressible joint fillers.
 - 3.2. Do not place concrete simultaneously on both sides of movement joints.

132 Additional requirements for construction joints

1. Limitations: Permitted, but subject to restrictions in section E10

210 Formed joints

1. Forms/ stop ends generally: Rigid and grout-tight.
2. Forms/ stop ends for projecting continuity reinforcement: To accommodate bars or fabric without temporary bending or displacement.

230 Preparation of construction joints

1. Roughening of joint surfaces: Select from:
 - 1.1. Brushing and spraying: Remove surface laitance and expose aggregate finish while concrete is still green.
 - 1.2. Other methods: Submit proposals.
2. Condition of joint surfaces immediately before placing fresh concrete: Clean and damp.

260 Sawn crack inducing grooves

1. Groove dimensions
 - 1.1. Depth: 30 mm
 - 1.2. Width: As narrow as practicable.
2. Sawing: Sufficiently early to prevent random cracking (within 24 hours of casting slab) and to produce strong, well defined arrises.
3. Groove filling: None

320 Hydrophilic waterstops

1. Manufacturer: Submit proposals
 - 1.1. Product reference:
2. Certification: Provide European Technical Assessment (ETA) with CE marking and a Declaration of Performance (DoP)
3. Location: As detailed
4. Material: Synthetic elastomer
5. Method of fixing: Bonded using an adhesive approved by waterstop manufacturer
6. Condition of concrete surface at time of fixing: Clean and free from ponded or running water.
7. Protection: Prevent wetting of exposed sections of waterstop.

Ω End of Section

E41

Worked finishes to in situ concrete

To be read with preliminaries/ general conditions.

150 Finishing

1. Timing: Carry out at optimum times in relation to setting and hardening of concrete.
2. Prohibited treatments to concrete surfaces
 - 2.1. Wetting to assist surface working.
 - 2.2. Sprinkling cement.

310 Smooth floated finish

1. Surface on completion: Even with no ridges or steps.

320 Trowelled finish

1. Surface on completion: Uniform, smooth but not polished, free from trowel marks and blemishes, and suitable to receive specified flooring material.

Ω End of Section

F10 Brick/ block walling

Types of walling

355 Concrete common blockwork

1. Description: HOLLOW CONCRETE BLOCKWORK
2. Blocks: To SM EN 771-3.
 - 2.1. Manufacturer: Submit proposals
 - 2.1.1. Product reference: Submit proposals, to be approved by the Perit
 - 2.2. Configuration: Single/Double density
 - 2.3. Compressive strength
 - 2.3.1. Characteristic value: 6 N/mm²
 - 2.4. Recycled content: None permitted
 - 2.5. Work sizes (length x width x height): 455 x 150, 175, 230 and 300 x 255 mm.
 - 2.5.1. Tolerance category: D1 (i.e. +3 mm to -5 mm on length, width and height)
 - 2.6. Special shapes: Jumper blocks (to break up regular coursing), quoins, end blocks.
 - 2.7. Additional requirements: To be reinforced with Ribbed bar reinforcement as per section E30 and/or infilled with concrete as per section E10 where indicated.
3. Mortar: As section Z21.
 - 3.1. Standard: To SM EN 998-2
 - 3.2. Mix: Site-batched and mixed mortar: Select from: 1:1:6 cement:lime:sand or 1:3 masonry cement: sand.
 - 3.3. Additional requirements: None
4. Bond: Half-lap stretcher

Testing - Not Used

Workmanship generally

440 Conditioning of concrete bricks/ blocks

1. Autoclaved concrete bricks/ blocks delivered warm from manufacturing process: Do not use.
2. Age of nonautoclaved concrete bricks/ blocks: Do not use until at least four weeks old.
3. Avoidance of suction in concrete bricks/ blocks: Do not wet.
 - 3.1. Use of water retaining mortar admixture: Submit details.

460 Mortar designations

1. Mix proportions: For a specified designation select a mix from the following:
 - 1.1. Designation (i) (BS EN 998-2 M12 equivalent)
 - 1.1.1. 1:0-¼:3 (Portland cement:lime:sand with or without air entraining additive).
 - 1.1.2. 1:1:3 (Portland cement:sand and air entraining additive).
 - 1.2. Designation (ii) (BS EN 998-2 class M6 equivalent)
 - 1.2.1. 1:½:4-5 (Portland cement:lime:sand with or without air entraining additive).
 - 1.2.2. 1:3 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
 - 1.2.3. 1:2½-3½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).

- 1.2.4.1:3-4 (Portland cement:sand and air entraining additive).
- 1.3. Designation (iii) (BS EN 998-2 class M4 equivalent)
 - 1.3.1.1:1:5-6 (Portland cement:lime:sand with or without air entraining additive).
 - 1.3.2.1:3½-4 (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
 - 1.3.3.1:4-5 (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
 - 1.3.4.1:5-6 (Portland cement:sand and air entraining additive).
- 1.4. Designation (iv) (BS EN 998-2 class M2 equivalent)
 - 1.4.1.1:2:8-9 (Portland cement:lime:sand with or without air entraining additive).
 - 1.4.2.1:4½ (masonry cement:sand containing Portland cement and lime in approximate ratio 1:1, and an air entraining additive).
 - 1.4.3.1:5½-6½ (masonry cement:sand containing Portland cement and inorganic materials other than lime and air entraining additive).
 - 1.4.4.1:7-8 (Portland cement:sand and air entraining additive).
- 2. **Batching:** Mix proportions by volume.
- 3. **Mortar type:** Continuous throughout any one type of masonry work.

500 Laying generally

- 1. **Mortar joints:** Fill vertical joints. Lay bricks, solid and cellular blocks on a full bed.
- 2. **Bond where not specified:** Half-lap stretcher.
- 3. **Vertical joints in brick and concrete block facework:** Even widths. Plumb at every fifth cross joint.

520 Accuracy

- 1. **Courses:** Level and true to line.
- 2. **Faces, angles and features:** Plumb.
- 3. **Permissible deviations**
 - 3.1. Position in plan of any point in relation to the specified building reference line and/ or point at the same level: ± 10 mm.
 - 3.2. Straightness in any 5 m length: ± 5 mm.
 - 3.3. Verticality up to 3 m height: ± 10 mm.
 - 3.4. Verticality up to 7 m height: ± 14 mm.
 - 3.5. Overall thickness of walls: ± 10 mm.
 - 3.6. Level of bed joints up to 5 m (brick masonry): ± 11 mm.
 - 3.7. Level of bed joints up to 5 m (block masonry): ± 13 mm.

535 Height of lifts in walling using cement-gauged or hydraulic lime mortar

- 1. **Quoins and advance work:** Rack back.
- 2. **Lift height (maximum):** 1.2 m above any other part of work at any time.
- 3. **Daily lift height (maximum):** 1.5 m for any one leaf.

545 Levelling of separate leaves

- 1. **Locations for equal levelling of cavity wall leaves:** As follows:
 - 1.1. Every course containing vertical twist type ties or other rigid ties.
 - 1.2. Every third tie course for double triangle/ butterfly ties.
 - 1.3. Courses in which lintels are to be bedded.

595 Lintels

1. **Bearing:** Ensure full length masonry units occur immediately under lintel ends.

610 Support of existing work

1. **Joint above inserted lintel or masonry:** Fully consolidated with semidry mortar to support existing structure.

620 Block bonding new walls to existing

1. **Pocket requirements:** Formed as follows:
 - 1.1. **Width:** Full thickness of new wall.
 - 1.2. **Depth (minimum):** 100 mm.
 - 1.3. **Vertical spacing**
 - 1.3.1. **Brick to brick:** 4 courses high at 8 course centres.
 - 1.3.2. **Block to block:** Every other course.
2. **Pocket joints:** Fully filled with mortar.

635 Jointing

1. **Profile:** Consistent in appearance.

645 Accessible joints not exposed to view

1. **Jointing:** Struck flush as work proceeds.

665 Pointing

1. **Description:** TO ALL WALLING
2. **Joint preparation:** Remove debris. Dampen surface.
3. **Mortar:** As section Z21.
 - 3.1. **Standard:** To SM EN 998-2
 - 3.2. **Mix:** Site-batched and mixed mortar: Select from: 1:1:6 cement:lime:sand or 1:3 masonry cement: sand.
 - 3.3. **Additional requirements:** None
4. **Profile:** Flush

690 Adverse weather

1. **General:** Do not use frozen materials or lay on frozen surfaces.
2. **Air temperature requirements:** Do not lay bricks/ blocks:
 - 2.1. In cement-gauged mortars when at or below 3°C and falling or unless it is at least 1°C and rising.
3. **Newly erected walling:** Protect at all times from:
 - 3.1. Rain and snow.
 - 3.2. Drying out too rapidly in hot conditions and in drying winds.

Additional requirements for facework

710 The term facework

1. **Definition:** Applicable in this specification to brick/ block walling finished fair.
 - 1.1. **Painted facework:** The only requirement to be waived is that relating to colour.

760 Appearance

1. **Brick/ block selection:** Do not use units with damaged faces or arrises.
2. **Cut masonry units:** Where cut faces or edges are exposed cut with table masonry saw.
3. **Quality control:** Lay masonry units to match relevant reference panels.
 - 3.1. **Setting out:** To produce satisfactory junctions and joints with built-in features and components.
 - 3.2. **Coursing:** Evenly spaced using gauge rods.
4. **Lifts:** Complete in one operation.
5. **Methods of protecting facework:** Submit proposals.

780 Ground level

1. **Commencement of facework:** Not less than 150 mm below finished level of adjoining ground or external works level.

790 Putlog scaffolding

1. **Use:** Not permitted in facework.

800 Toothed bond

1. **New and existing facework in same plane:** Bond together at every course to achieve continuity.

830 Cleanliness

1. **Facework:** Keep clean.
2. **Mortar on facework:** Allow to dry before removing with stiff bristled brush.
3. **Removal of marks and stains:** Rubbing not permitted.

Ω End of Section

F21

Natural stone/ ashlar walling/ dressings

Types of walling/ dressings

110 Ashlar

1. Description: WALLING AND DRESSINGS
2. Stone: To MSA EN 771-6 or SM EN 12440 where applicable.
 - 2.1. Name (traditional): Globigerina limestone (Franka)
 - 2.2. Petrological family: Limestone
 - 2.3. Colour: White
 - 2.4. Origin: Malta - local quarry to be approved by the Perit.
 - 2.5. Finish: To match existing (fuq il-fil)
 - 2.6. Supplier: Submit proposals
 - 2.7. Unit dimension tolerances: Length + 1 mm, width (bed) +1 mm, height + 1 mm
 - 2.8. Compressive strength
 - 2.8.1.Characteristic value (minimum): 15 N/mm²
 - 2.8.2.Category: II
 - 2.9. Quality: Free from vents, cracks, fissures, discolouration, or other defects deleterious to strength, durability or appearance. Before delivery to site, season thoroughly, dress and work in accordance with shop drawings prepared by supplier.
3. Mortar: As section Z21.
 - 3.1. Standard: To SN EN 998-2
 - 3.2. Mix: 1:2½ NHL 3.5 hydraulic lime:sand
 - 3.3. Sand: To MSA EN 13139; crushed stone with grading to approval
 - 3.4. Additional requirements: Coloured mortar to match stone
4. Bond: Half lap stretcher
5. Joints: Flush.
 - 5.1. Width: 10 mm
 - 5.2. Pointing: As clause 390

General production

240 Stone samples

1. Submit: Labelled samples of dressed stone or arrange for samples which represent the range of variation in appearance to be inspected.
 - 1.1. Timing: Before placing orders.

250 Cutting and dressing of stone

1. Timing: After seasoning but before delivery to site.
2. Accuracy
 - 2.1. Exposed and joint surfaces: Square, true planes free from hollow or rough areas.
 - 2.2. Dimensions: Maintain specified joint widths.
3. Orientation for natural bed of stones: Appropriate to properties of stones and positions in walling/ dressings.

260 Identification of stone units

1. **Marking:** Clearly and indelibly on concealed faces to indicate the natural bed and position in the finished work.

270 Inspection of stone units

1. **Give notice:** Before despatch to site, at appropriate stages of production.

280 Sand samples

1. **Submit:** Representative samples for approval of colour and grading.
 - 1.1. **Timing:** Before placing orders.

Laying and jointing

315 Adverse weather

1. **General:** Do not use frozen materials or lay on frozen surfaces.
2. **Air temperature:** Do not lay stones:
 - 2.1. **In cement gauged mortars:** At or below 3°C and falling or below 1°C and rising.
 - 2.2. **In hydraulic lime:sand mortars:** At or below 5°C and falling or below 3°C and rising.
3. **Temperature of walling during curing:** Above freezing until mortar hardened.
4. **Newly erected walling:** Protect at all times from:
 - 4.1. Rain and snow.
 - 4.2. Drying out too rapidly in hot conditions and in drying winds.

325 Laying generally

1. **Stone selection:** Do not use units with damaged faces or arrises.
2. **Accuracy**
 - 2.1. **Courses:** Level and true to line.
 - 2.2. **Faces, angles and features:** Plumb.
 - 2.3. **Setting out:** Achieve satisfactory junctions and joints with adjoining or built-in elements and components.
3. **Absorbent stones:** Dampen in warm weather to reduce suction. Do not soak.
4. **Mortar joints**
 - 4.1. **Laying:** Full bed of mortar with all joints and voids filled.
 - 4.2. **Temporary distance pieces:** Lead or stainless steel. Remove when mortar is sufficiently strong.
 - 4.3. **Appearance:** Neat and consistent.
5. **Cleanliness:** Keep facework clean. Rubbing and other abrasive or chemical cleaning methods to remove marks and stains not permitted.

330 Walling below ground level

1. **Extent of facework below finished level of adjoining ground or external works (minimum):** 150 mm.

340 Putlog scaffolding

1. **Use:** Not permitted.

350 One piece sills/ Thresholds

1. **Bed joints:** Leave open except under:
 - 1.1. End bearings.

- 1.2. Masonry mullions.
2. Pointing on completion: Mortar to match adjacent work.

360 Openings

1. Method of forming: Rigid templates, accurately fabricated to the required size.

370 Joggle joints

1. General: Fill with bedding mortar. Tamp to expel air.

390 Pointing

1. Joint preparation: Rake out to depth of 7-10 mm as work proceeds. Remove debris. Dampen surface.
2. Mortar application: Neat and consistent.

410 Support of existing work

1. Joint above inserted lintel or masonry: Fully consolidated with semidry mortar to support existing structure.

Ω End of Section

F30

Accessories/ sundry items for brick/ block/ stone walling

Cavities

120 Cleanliness

1. Cavity base and faces, ties, insulation and exposed dpcs: Free from mortar and debris.

Reinforcing/ fixing accessories

214 Cavity wall ties

1. Description: FOR CATHECHISM FACADE CAVITY WALL
2. Standard: To SM EN 845-1.
 - 2.1. Type: 1 (Masonry heavy duty)
3. Manufacturer: Submit proposals
 - 3.1. Product reference: Submit proposals, to be approved by the Perit.
4. Material/ finish: Austenitic stainless steel - material/ coating reference 1
5. Sizes: 150 mm
6. End types: Symmetrical pierced non-deformed plate
7. Embedment length (minimum): 50 mm
8. Movement: Non-tolerant
9. Additional requirements: Minimum mortar joint thickness: 8 mm

221 Frame cramps

1. Description: FOR EXISTING WALLS
2. Standard:: To SM EN 845-1.
 - 2.1. Type:: 1 (Masonry heavy duty)
3. Manufacturer: Submit proposals
 - 3.1. Product reference: Submit proposals, to be approved by the Perit.
4. Material/ finish: Austenitic stainless steel - material/ coating reference 1
5. Sizes: 150 mm
6. Fixing to vertical face:: Stainless steel screws, circular hole.
7. End type:: Pierced non-deformed plate

225 Fixing ties in masonry cavity walls

1. Embedment in mortar beds (minimum): 50 mm.
2. Placement: Sloping slightly downwards towards outer leaf, without bending. Drip centred in the cavity and pointing downwards.
3. Spacing: Staggered in alternate courses.
 - 3.1. Horizontal centres: 690 mm
 - 3.2. Vertical centres: 530 mm
4. Provision of additional ties: Within 225 mm of reveals of unbonded openings and at the vertical reveals of unsupported masonry.
 - 4.1. Spacing: In every course

Flexible damp-proof courses/ cavity trays

310 Damp-proof courses – bitumen-based

1. Standard: To MSA EN 14967
 - 1.1. Type: Bitumen polymer
2. Manufacturer: Submit proposals
 - 2.1. Product reference: Submit proposals, to be approved by the Perit.
3. Additional requirements: Use jointing tape as per manufacturer's recommendations

Installation of dpcs/ cavity trays

415 Installation of horizontal dpcs

1. Placement: In continuous lengths on full even bed of fresh mortar, with 100 mm laps at joints and full laps at angles.
2. Width: At least full width of leaf unless otherwise specified. Edges of dpc not covered with mortar or projecting into cavity.
3. Overlying construction: Immediately cover with full even bed of mortar to receive next masonry course.
4. Overall finished joint thickness: As close to normal as practicable.

425 Installation of ground level dpcs

1. Joint with damp-proof membrane: Continuous and effectively sealed.

435 Installation of stepped dpcs in external walls

1. External walls on sloping ground: Install dpcs not less than 150 mm above adjoining finished ground level.

445 Installation of sill dpcs

1. Form and placement: In one piece and turned up at back when sill is in contact with inner leaf.

455 Installation of coping/ capping dpcs

1. Placement: Bed in one operation to ensure maximum bond between masonry units, mortar and dpc.
2. Dpcs crossing cavity: Provide rigid support to prevent sagging.

465 Sealing of dpcs

1. Description: GENERALLY
2. Overlaps and junctions: Seal with Adhesive recommended by dpc manufacturer.

515 Dpc/ cavity tray leading edge in facework - flush

1. Treatment at face of masonry: Finish flush and clear of mortar at the following locations: Generally.

560 Installation of vertical dpcs

1. Form: In one piece wherever possible.
 - 1.1. Joints: Upper part overlapping lower not less than 100 mm.

570 Installation of jamb dpcs at openings

1. Joint with cavity tray/ lintel at head: Full underlap.

2. Joint with sill/ horizontal dpc at base: Full overlap.
3. Projection into cavity: Not less than 25 mm.
4. Relationship with frame: In full contact.

Joins

670 Head of non-loadbearing walls

1. Restraints: As drawing AA(2-)206
 - 1.1. Fixing: Secure to soffit.
2. Joint filler: 20mm thick, Expanded polystyrene sheet
 - 2.1. Placement: Full, no gaps.

Proprietary sills/ lintels/ copings/ dressings - Not Used

Miscellaneous items - Not Used

Ω End of Section

F31

Precast concrete sills/ lintels/ copings/ features

Types of component

122A Designed concrete precast lintels

1. Description: LINTELS
2. Concrete: Designed to BS 8500-2.
3. Compressive Strength Class (cylinder/ cube): C32/40
4. Target density (oven-dry): Normal.
5. Reinforcement type/ strength grade: Ribbed bar. Grade B500B.
 - 5.1. Cover to reinforcement (nominal): Minimum cover 25 mm plus 10 mm fixing tolerance
6. Aggregates
 - 6.1. Size (maximum): 20 mm
 - 6.2. Coarse recycled aggregate: Not permitted
7. Limiting values for composition
 - 7.1. W/c ratio (maximum): 0.55
 - 7.2. Cement/ Combination content (minimum): 300 kg/m³
8. Cement/ Combinations: Contractor's choice
9. Matching sample for finish to visible faces: As agreed
10. Other requirements: Fixing inserts, such as lifting hooks to be approved by the Perit.

General requirements

210 Moulds

1. Permissible fabrication and operating tolerances: Length 0 to +6 mm, other dimensions ±3 mm.

220 Concrete generally

1. Specification: To BS 8500-2 and BS EN 206.
2. Producer: Accredited to BS 8500-2 requirements where product conformity certification is required.

250 Reinforcement

1. Carbon steel reinforcement: As appropriate to BS 4449, BS 4482 and BS 4483.
 - 1.1. Cutting and bending: To BS 8666.
2. Galvanized reinforcement: Galvanized to BS EN ISO 1461 after cutting. Chromate treated.
3. Stainless steel reinforcement: To BS 6744.
 - 3.1. Designation 1.4301.
 - 3.2. Cutting and bending: To BS 8666.
4. Non-structural reinforcement: Include to resist shrinkage and handling stresses.
5. Bimetallic corrosion and staining: Prevent by appropriate selection and use of materials.
6. Condition at time of placement: Clean, free of corrosive pitting, loose materials and substances that adversely affect reinforcement, concrete, or bond between the two.
7. Fixing: Accurate and secure.
 - 7.1. Method: Wire tying, approved steel clips or tack welding if permitted.
 - 7.2. Concrete cover: Maintain free of all tying wire or clips.

255 Quality assurance of reinforcement

1. Reinforcement to BS 4449, BS 4483 and BS 6744: Obtain valid
2. certificates of approval for product conformity issued by the
3. UK Certification Authority for Reinforcing Steels.

260 Casting and curing

1. Placing of concrete: Thoroughly compact.
2. Protection against drying out: Methods and duration to BS EN 13369.
3. Immature components: Avoid movement, vibration, overloading, physical shock, rapid cooling and thermal shock.
4. Delivery to site: Minimum 14 days after casting.

261 Cutting

1. Cutting of precast concrete components: Not permitted.

262 Records

1. Records for each type of component: Maintain details including:
 - 1.1. Unique identification number.
 - 1.2. Identification of the producer.
 - 1.3. Identification of the place of production.
 - 1.4. Correlation with records of mixes, including batch numbers.
 - 1.5. Date of each stage of manufacture.
 - 1.6. Dates and results of all tests, checks and inspections, including certification where relevant.
 - 1.7. Dimensions related to specified levels of accuracy.
 - 1.8. Specific location in the finished work.
 - 1.9. Weight of the unit.
 - 1.10. Damage and making good.
 - 1.11. Any other pertinent data, e.g. if unit is a production control unit.
2. Availability of records for inspection: On request.

Fair-faced components - Not Used

Installation

420 Laying

1. Mortar for bedding and jointing: As section Z21.
 - 1.1. Type: Site-batched and mixed
 - 1.2. Mix: 1:1:6 cement: lime: sand or 1:3 masonry cement:sand
 - 1.3. Packing: If required use slate.
2. Bedding components: On full bed of mortar.
3. Removal of marks, stains and extraneous mortar on visible faces: Rubbing not permitted.

430 Support of existing work over new lintels

1. Joint above lintels: Fully fill and compact with semidry mortar.

440 One-piece sills/ thresholds

1. Bed joints: Leave clear of mortar except at end bearings and beneath masonry mullions.

1.1. On completion: Point with mortar to match adjacent work.

Ω End of Section

J40

Flexible sheet waterproofing/ damp-proofing

To be read with preliminaries/ general conditions.

115 Concrete blinding to hardcore beds

1. Concrete: Designated RC20/25.
 - 1.1. Thickness: min. 75 mm
2. Finish on completion: Smooth.

Types of tanking/ damp proofing

120A Loose-laid polyethylene sheet damp-proofing

1. Substrate: Concrete blinding, as clause 115
2. Standard: To MSA EN 13967.
 - 2.1. Designation: Type A, damp-proof sheet
3. Manufacturer: Submit proposals
 - 3.1. Product reference: Submit proposals, to be approved by the Perit.
4. Thickness/ gauge: 300 micrometres (1200 gauge)
5. Recycled content: Not permitted
6. Joints
 - 6.1. Surfaces to be joined: Clean and dry beyond full width of joint.
 - 6.2. Laps (minimum): End and side, 150 mm
 - 6.3. Sealing: Continuous mastic strip between overlaps; edge of top sheet sealed with jointing tape

260 Fully bonded bitumen damp-proofing/ tanking membranes

1. Substrate: Concrete blinding, Flush-pointed blockwork, Smooth-rendered masonry, and/or Smooth excavated rockface.
2. Primer: Required, as per clause 335.
3. Manufacturer: Submit proposals
 - 3.1. Product reference: Submit proposals, to be approved by the Perit.
4. Bitumen sheet
 - 4.1. Type: To MSA EN 13707
 - 4.1.1. Weight (minimum): 4.3 kg/m²
5. Number of layers: Two, laid to break joint
6. Bonding: Hot-applied bonding compound, as per clause 340.
7. Joints: Side and end laps, minimum 100 mm and 150 mm respectively.
 - 7.1. Sealing: Fully bond.
8. Subsequent layers: Apply as soon as possible.
9. Accessories: In accordance with manufacturer's recommendations.

290 High-density polyethylene/ polypropylene studded cavity drain membrane

1. Substrate: Stonework
 - 1.1. Preparation: Fungicidal wash
2. Standard: To MSA EN 13967

3. **Manufacturer:** Submit proposals
 - 3.1. **Product reference:** Submit proposals, to be approved by the Perit.
4. **Stud height:** 5 mm
5. **Colour:** Contractor's choice
6. **Fixing:** In accordance with manufacturer's recommendations
 - 6.1. **Fasteners:** In accordance with manufacturer's recommendations
 - 6.1.1. **Fixing centres:** In accordance with manufacturer's recommendations
 - 6.1.2. **Sealing:** Taped flush with the membrane
7. **Joints:** Lapped minimum three studs
 - 7.1. **Sealing:** Butyl rubber sealant between last two rows of studs and joints overlapped
8. **Drainage components:** None
9. **Accessories:** In accordance with manufacturer's recommendations

Workmanship

310 Workmanship generally

1. **Condition of substrate**
 - 1.1. Clean and even textured, free from voids and sharp protrusions.
 - 1.2. **Moisture content:** Compatible with damp-proofing/ tanking.
2. **Air and surface temperature:** Do not apply sheets if below minimum recommended by membrane manufacturer.
3. **Condition of membrane at completion**
 - 3.1. Neat, smooth and fully supported, dressed well into abutments and around intrusions.
 - 3.2. Completely impervious and continuous.
 - 3.3. Undamaged. Prevent puncturing during following work.
4. **Permanent overlying construction:** Cover membrane as soon as possible.

320 Inspection

1. **Give notice:** Before covering any part of membrane with overlying construction.

335 Primers

1. **Manufacturer:** Submit proposals
 - 1.1. **Product reference:** Submit proposals, to be approved by the Perit.
2. **Coverage per coat (minimum):** As recommended for the purpose by membrane manufacturer
3. **Curing:** Allow to dry thoroughly before covering.

340 Hot-applied bonding compounds

1. **Type:** Oxidized bitumen.
 - 1.1. **Grade:** As recommended by membrane manufacturer for the conditions and type of surface
2. **Application:** Continuous even coating to provide full bonding over whole surface. Do not overheat.

350 Angles in bonded damp-proofing/ tanking

1. **Preformed rot-proof fillet to internal angles**
 - 1.1. **Size (minimum):** 50 x 50 mm, splay-faced.
 - 1.2. **Bedding:** Bitumen mastic or bonding compound.
2. **Reinforcing strip to all angles**
 - 2.1. **Material:** As damp-proofing/ tanking.

- 2.2. Width (minimum): 300 mm.
- 2.3. Timing: Apply before main sheeting.
- 3. Dressing of main sheeting onto adjacent surfaces (minimum): 100 mm.

365 Junctions with flush dpcs/ cavity trays

- 1. Adjoining surfaces: Clean and dry.
- 2. Preparation of adjacent dpcs/ cavity trays
 - 2.1. Expose edge where concealed.
 - 2.2. Lap and fully bond/ seal sheeting to wall.
 - 2.3. Dressing of sheeting beyond dpc/ cavity tray (minimum): 50 mm.
 - 2.4. Bonding/ sealing: Mastic tape

Ω End of Section

Z20

Fixings and adhesives

Products

310 Fasteners generally

1. **Materials:** To have:
 - 1.1. Bimetallic corrosion resistance appropriate to items being fixed.
 - 1.2. Atmospheric corrosion resistance appropriate to fixing location.
2. **Appearance:** Submit samples on request.

320 Packings

1. **Materials:** Noncompressible, corrosion proof.
2. **Area of packings:** Sufficient to transfer loads.

340 Masonry fixings

1. **Light duty:** Plugs and screws.
2. **Heavy duty:** Expansion anchors or chemical anchors.

350 Plugs

1. **Type:** Proprietary types to suit substrate, loads to be supported and conditions expected in use.

360 Anchors

1. **Types**
 - 1.1. **Expansion:** For use in substrate strong enough to resist forces generated by expansion of anchor.
 - 1.2. **Adhesive or chemical**
 - 1.2.1. For use in substrate where expansion of anchor would fracture substrate.
 - 1.2.2. For use in irregular substrate where expansion anchors cannot transfer load on anchor.
 - 1.3. **Cavity:** For use where the anchor is retained by toggles of the plug locking onto the inside face of the cavity.

380 Miscellaneous screws

1. **Type:** To suit the fixing requirement of the components and substrate.
 - 1.1. **Pattern:** Self-tapping, metallic drive screws, or power driven screws.
2. **Washers and screw cups:** Where required to be of same material as screw.

390 Adhesives

1. **Standards**
 - 1.1. Hot-setting phenolic and aminoplastic: To BS 1203.
 - 1.2. Thermosetting wood adhesives: To BS EN 12765.
 - 1.3. Thermoplastic adhesives: To BS EN 204.

410 Powder actuated fixing systems

1. **Types of fastener, accessories and consumables:** As recommended by tool manufacturer.

Execution

610 Fixing generally

1. **Integrity of supported components:** Select types, sizes, quantities and spacings of fixings, fasteners and packings to retain supported components without distortion or loss of support.
2. **Components, substrates, fixings and fasteners of dissimilar metals:** Isolate with washers/ sleeves to avoid bimetallic corrosion.
3. **Appearance:** Fixings to be in straight lines at regular centres.

620 Fixing through finishes

1. **Penetration of fasteners and plugs into substrate:** To achieve a secure fixing.

630 Fixing packings

1. **Function:** To take up tolerances and prevent distortion of materials and components.
2. **Limits:** Do not use packings beyond thicknesses recommended by fixings and fasteners manufacturer.
3. **Locations:** Not within zones to be filled with sealant.

640 Fixing cramps

1. **Cramp positions:** Maximum 150 mm from each end of frame sections and at 600 mm maximum centres.
2. **Fasteners:** Fix cramps to frames with screws of same material as cramps.
3. **Fixings in masonry work:** Fully bed in mortar.

660 Screw fixing

1. **Finished level of countersunk screw heads**
 - 1.1. **Exposed:** Flush with timber surface.
 - 1.2. **Concealed (holes filled or stopped):** Sink minimum 2 mm below surface.

690 Using powder actuated fixing systems

1. **Powder actuated fixing tools:** To BS 4078-2 and Kitemark certified.
2. **Operatives:** Trained and certified as competent by tool manufacturer.

700 Applying adhesives

1. **Surfaces:** Clean. Adjust regularity and texture to suit bonding and gap filling characteristics of adhesive.
2. **Support and clamping during setting:** Provide as necessary. Do not mark surfaces of or distort components being fixed.
3. **Finished adhesive joints:** Fully bonded. Free of surplus adhesive.

Ω End of Section

Z21 Mortars

Cement gauged mortars

110 Cement gauged mortar mixes

1. **Specification:** Proportions and additional requirements for mortar materials are specified elsewhere.

120 Sand for site made cement gauged masonry mortars

1. **Standard:** To BS EN 13139.
2. **Grading:** 0/2 (FP or MP).
 - 2.1. **Fines content** where the proportion of sand in a mortar mix is specified as a range (e.g. 1:1: 5-6):
 - 2.1.1. **Lower proportion of sand:** Use category 3 fines.
 - 2.1.2. **Higher proportion of sand:** Use category 2 fines.
3. **Sand for facework mortar:** Maintain consistent colour and texture. Obtain from one source.

131 Ready-Mixed lime:sand for cement gauged masonry mortars

1. **Standard:** To BS EN 998-2.
2. **Lime:** Nonhydraulic to BS EN 459-1.
 - 2.1. **Type:** CL 90S.
3. **Pigments for coloured mortars:** To BS EN 12878.

135 Site made lime:sand for cement gauged masonry mortars

1. **Permitted use:** Where a special colour is not required and in lieu of factory made ready-mixed material.
2. **Lime:** Nonhydraulic to BS EN 459-1.
 - 2.1. **Type:** CL 90S.
3. **Mixing:** Thoroughly mix lime with sand, in the dry state. Add water and mix again. Allow to stand, without drying out, for at least 16 hours before using.

160 Cements for mortars

1. **Cement:** To BS EN 197-1 and CE marked.
 - 1.1. **Types:** Portland cement, CEM I.
 - 1.1.1. **Portland limestone cement,** CEM II/A-L or CEM II/A-LL.
2. **Portland slag cement,** CEM II/B-S.
3. **Portland fly ash cement,** CEM II/B-V.
 - 3.1. **Strength class:** 32.5, 42.5 or 52.5.
4. **White cement:** To BS EN 197-1 and CE marked.
 - 4.1. **Type:** Portland cement, CEM I.
 - 4.2. **Strength class:** 52.5.
5. **Sulfate resisting Portland cement**
 - 5.1. **Type:** To BS EN 197-1 Sulfate resisting Portland cement, CEM I/SR and CE marked.
6. **To BS EN 197-1 fly ash cement,** CEM II/B-V and CE marked.
 - 6.1. **Strength class:** 32.5, 42.5 or 52.5.
7. **Masonry cement:** To BS EN 413-1 and CE marked.

7.1. Class: MC 12.5.

180 Admixtures for site made cement gauged mortars

1. **Air entraining (plasticizing) admixtures:** To BS EN 934-3 and compatible with other mortar constituents.
2. **Other admixtures:** Submit proposals.
3. **Prohibited admixtures:** Calcium chloride, ethylene glycol and any admixture containing calcium chloride.

190 Retarded ready to use cement gauged mortar

1. **Standard:** To BS EN 998-2.
2. **Lime for cement:lime:sand mortars:** Nonhydraulic to BS EN 459-1.
 - 2.1. **Type:** CL 90S.
3. **Pigments for coloured mortars:** To BS EN 12878.
4. **Time and temperature limitations:** Use within limits prescribed by mortar manufacturer.
 - 4.1. **Retempering:** Restore workability with water only within prescribed time limits.

200 Storage of cement gauged mortar materials

1. **Sands and aggregates:** Keep different types/ grades in separate stockpiles on hard, clean, free-draining bases.
2. **Factory made ready-mixed lime:sand/ ready to use retarded mortars:** Keep in covered containers to prevent drying out or wetting.
3. **Bagged cement/ hydrated lime:** Store off the ground in dry conditions.

210 Making cement gauged mortars

1. **Batching:** By volume. Use clean and accurate gauge boxes or buckets.
 - 1.1. **Mix proportions:** Based on dry sand. Allow for bulking of damp sand.
2. **Mixing:** Mix materials thoroughly to uniform consistency, free from lumps.
 - 2.1. **Mortars containing air entraining admixtures:** Mix mechanically. Do not overmix.
3. **Working time (maximum):** Two hours at normal temperatures.
4. **Contamination:** Prevent intermixing with other materials.

Lime:sand mortars

310 Lime:sand mortar mixes

1. **Specification:** Proportions and additional requirements for mortar materials are specified elsewhere.

320 Sand for lime:sand masonry mortars

1. **Type:** Sharp, well graded.
 - 1.1. **Quality, sampling and testing:** To BS EN 13139.
 - 1.2. **Grading/ Source:** As specified elsewhere in relevant mortar mix items.

345 Admixtures for hydraulic lime:sand mortars

1. **Air entraining (plasticizing) admixtures:** To BS EN 934-3 and compatible with other mortar constituents.
2. **Prohibited admixtures:** Calcium chloride, ethylene glycol and any admixture containing calcium chloride.

350 Storage of lime:sand mortar materials

1. **Sands and aggregates:** Keep different types/ grades in separate stockpiles on hard, clean, free-draining bases.
2. **Ready prepared nonhydraulic lime putty:** Prevent drying out and protect from frost.
3. **Nonhydraulic lime:sand mortar:** Store on clean bases or in clean containers that allow free drainage. Prevent drying out or wetting and protect from frost.
4. **Bagged hydrated hydraulic lime:** Store off the ground in dry conditions.

360 Making lime:sand mortars generally

1. **Batching:** By volume. Use clean and accurate gauge boxes or buckets.
2. **Mixing:** Mix materials thoroughly to uniform consistency, free from lumps.
3. **Contamination:** Prevent intermixing with other materials, including cement.

400 Making hydraulic lime:sand mortars

1. **Mixing hydrated hydraulic lime:sand:** Follow the lime manufacturer's recommendations for each stage of the mix.
 - 1.1. **Water quantity:** Only sufficient to produce a workable mix.
2. **Working time:** Within limits recommended by the hydraulic lime manufacturer.

Ω End of Section